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PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

Vol. LXXIX. No. 19 NEW YORK AND CHICAGO, NOVEMBER 6, 1924 { Per annum, $4.00 { Per Copy, 10 cents

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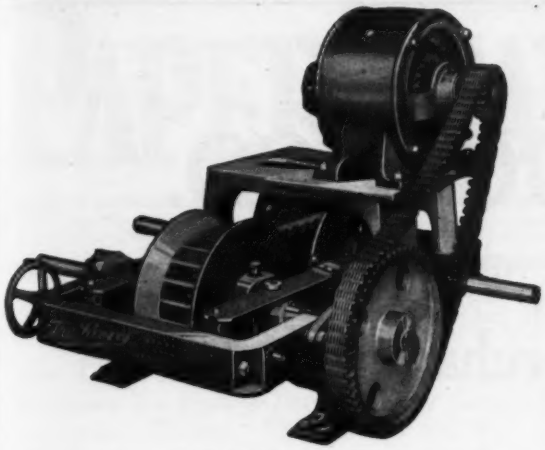

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PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-THIRD YEAR

Published Every Thursday by the

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LESLIE R. PALME' PRESIDENT — GEO. S. MACDONALD VICE-PRESIDENT & TREAS — F. K. HOPPIE SECRETARY

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ESTABLISHED IN 1872

PAPER TRADE JOURNAL

Vol. LXXIX. No. 19 NEW YORK AND CHICAGO Thursday, November 6, 1924

PAPER PRODUCTION FOR SEPTEMBER SHOWS GAIN

Increases Two Per Cent Over Figures for August Following Seven Per Cent Increase for August Over July According To Figures Just Issued By the American Paper and Pulp Association—During the Same Period Domestic Pulp Production for All Grades Except Mechanical Pulp Increased Slightly Less Than One Per Cent

The September production of paper in the United States, as reported by identical mills to the American Paper and Pulp Association and cooperating organizations, showed an increase of 2 per cent over August's production, following a 7 per cent increase in August over July, according to the Association's monthly statistical summary of the pulp and paper industry.

This summary is prepared by the American Paper and Pulp Association, as the central organization of the paper industry, in cooperation with the Binders Board Manufacturers Association, News Print Service Bureau, Tissue Paper Manufacturers Association, Wrapping Paper Manufacturers Service Bureau, and Writing Paper Manufacturers Association.

The figures for September are as follows:

Grade	Number of mills	Production Net tons	Shipments Net tons	Stocks on hand End of month Net tons
News print	65	116,206	116,598	28,463
Book	62	81,800	83,620	35,478
Paperboard	98	162,662	103,293	33,075
Wrapping	86	50,925	53,561	63,993
Bag	25	9,387	9,410	6,006
Fine	83	23,167	22,055	40,548
Tissue	44	10,596	10,996	8,896
Hanging	8	5,251	5,539	3,506
Felts	19	16,642	16,958	2,837
Other grades	53	17,364	17,600	13,595
Total—all grades	..	434,000	439,630	236,397

During the same period, domestic wood pulp productions increased less than 1 per cent, this increase being distributed over all grades except Mechanical. The September totals, as reported by the American Paper and Pulp Association, through the United States Pulp Producers Association, are as follows:

Grade	Number of mills	Production Net tons	Shipments Net tons	Stocks on hand End of month Net tons
Ground wood pulp	98	72,532	4,304	130,377
Sulphite, news grade	38	35,614	2,888	12,315
Sulphite, bleached	20	19,115	3,731	2,438
Sulphite, easy bleaching	5	5,115	410	471
Sulphite, Mitscherlich	6	5,504	643	579
Sulphate pulp	11	12,623	1,172	6,084
Soda pulp	12	14,909	4,462	2,501
Other than wood pulp	2	20	.....	56
Total—all grades	..	165,432	17,610	154,821

Speculation Regarding News Print Prices

The *Wall Street Journal* printed the following news dispatch from Toronto in its issue of Monday:—

"With the approach of November, news of a general cut in price of news print by Canadian mills is expected in pulp and paper circles. It was at first expected that this would be made before the end of October, to take effect on January 1, 1925. On account of temporary shutting-off of supply from Price Brothers' mills, due to recent floods in Quebec, and temporary increase in consumption attributable to election campaign in the United States, it may possibly be delayed until the middle of next month. It is understood that a conference of producers will be held in New York on November 11 or 12, and one large Canadian producer has already arranged to hold a board meeting in New York on that date.

"It is conceded in all quarters that International Paper's reduction to $70 a ton will be met, and option is that a further cut is not improbable. In conservative news print circles a 1925 news print price of $68 a ton is considered altogether probable. On the other hand, interests close to the trade both in Ontario and Quebec that have been remarkably accurate in former predictions believe that a drop to $65 a ton may occur before the bottom is reached. It is understood that one Quebec producer who figured its costs this year on an estimated figure of $68 for news print is lining up its production for 1925 on a $65 a ton selling basis. White news print demand is reported good at present, it is conceded that new production is coming into the market fast and may upset plans of the other concerns. Prediction is made in certain circles that $65 news print might result in closing down certain mills now operating."

Arranging to Take Over Riordon Properties

"Arrangements for taking over properties formerly belonging to Riordan Pulp and Paper Company, and now in the hands of bondholders' committees, are being made by International Paper Company," says the *Wall Street Journal*. "Financing the acquisition will take the form of a bond issue of around $10,000,000 or $12,000,000, although definite plans have not yet been made and terms are still in the talking stage. The new properties will bring International's timber holdings up to about 16,000 square miles, compared with the present 7,000, add two modern sulphite mills, and furnish a number of valuable water power sites. Increased competition from Canadian news print mills is showing the wisdom of International Paper's management in planning expansion in Canada, where conditions are more favorable to production."

L. L. Brown Paper Co. Builds Addition

NORTH ADAMS, Mass., November 3, 1924.—Work is now in progress on an addition to the L. L. Brown Paper Company's upper mill. The addition will be 50 x 54 feet in area, and two stories high. It is being constructed to increase the size of the machine room. The foundation has been laid and the building will be completed in a few weeks, it is expected.

PULPWOOD CUT IN QUEBEC IS 50 PER CENT OF NORMAL

Demand From Mills Limited Since Early Last Winter and During the Last Few Months There Has Been Practically No Demand at All From the American Mills—Water Power Developments To Be Carried Out By the Abitibi Power & Paper Co., Will, It Is Understood Cost Upwards of $5,000,000—Hammermill Paper Co. Awarded $47,911 Damages in Pulpwood Suit.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., November 3, 1924.—E. O. Bernier & Co., Ltd., pulpwood merchants, Quebec, make the following statement on the pulpwood situation: "Owing to the limited demand for wood from the mills since early last winter, the cut in this section of the province this year is only fifty per cent of normal. For the last few months there has been practically no demand for pulpwood and the American mills have been out of the market since the beginning of the year. In former years the mills would contract in the early spring for their requirements for the coming year, but to date we do not know of one mill that has given a contract for next winter's delivery. This will account for the small production of sap-peeled pulpwood this year. Consequently prices are somewhat lower now than they have been for some time past. We have had a few inquiries from American mills during the past ten days for sap-peeled wood, but are inclined to believe that they are only feeling the market, as all the large mills are well supplied with wood for the coming winter, but would possibly be interested in small lots at bargain prices. It is possible that they may contract next winter for wood to be delivered in the spring or early next summer. We do not believe that any of the Canadian mills will be in the market for pulpwood next winter as they were all successful with their drives last spring—in fact, to such an extent that the wood which they figured on leaving in the upper parts of the rivers for the winter has come into the booms at the mills."

Abitibi Power Developments

It is understood here that the power developments to be carried out by the Abitibi Pulp and Paper Company will entail a cost of upwards of $5,000,000. A director of the Company states that no contracts have as yet been let for the new power development on the Abitibi River at Long Sault, where the Company plans to generate between 25,000 and 40,000 h.p., which will permit increase in its news print output to one thousand tons daily. The power development, he intimates, will be financed by a separate company, subsidiary to Abitibi, which will issue bonds for the purpose and whose stock will be held by the parent company. This method of financing will be adopted on account of the difficulty in disturbing existing parent bond issues and sinking fund arrangements.

$47,911 Awarded to Hammermill Paper Co.

Mr. Justice Duclos, in the Superior Court, Montreal, has condemned the Matane Lumber and Development Company to pay $47,911.15 to the Hammermill Paper Company, as the value, with interest, of logs, ties, and pulpwood which were not delivered to the plaintiff company, though bought and paid for under a general deed of sale. The plaintiff company declared that on September 10, 1920, by a private agreement, which was later confirmed by a notarial deed, the Matane Lumber and Development Company agreed to sell and deliver to the plaintiff company, moveable and immoveable properties situated at Matane, which included practically all of the assets of the defendant. The purchase price of the wooded lands was $1,329,460. The price of the other properties, including logs, pulpwood, equipment, mill, and other assets, was to be the net cost of such assets, as shown by the books of the vendor. The plaintiff company declared that these assets were presently estimated at $750,000. The Hammermill Paper Company, plaintiff, declared that a quantity of logs, ties and pulpwood, guaranteed by the contract with the Matane Lumber and Development Company, defendant, had not been delivered though paid for, and it asked judgment for their value and interest.

In defense, the Matane Lumber and Development Company pleaded that no final contract had been signed by the parties until December 2, 1920, and that the agreement should be interpreted only according to the terms of this final contract. The defendant company stated that, in any event, it did in fact convey to the plaintiff substantially all the assets, as shown by a statement made in July, 1920. It was further pleaded that the plaintiff company had negligently failed to measure the logs in accordance with the contract. If the wood had been properly measured, it was claimed, the required quantity would have been found.

Mr. Justice Duclos, in condemning the defendant company to pay $47,911.15, as the estimated value of logs and other wood not delivered, declared that the obligation of delivery, which was upon the defendant, included the obligation of measurement.

Action Over Power Rights

On the petition of the St. Maurice Power Company Ltd., of Shawinigan, Que., a subsidiary of the Shawinigan Water and Power Company, a writ has been issued by the Superior Court of Montreal calling upon the United Manufacturing Company to show reason why its charter, granted in 1910, should not be annulled, on the ground that ten per cent of its capital has never been paid. It is stated that the United Manufacturing Company, in this suit seeks to prevent the petitioner from utilizing the full flow or drop of the St. Maurice river at certain points, notably at Gabelle and Forge rapids. For this reason, it is maintained by the petitioning company that it has an interest in asking the court to declare the charter of the United Manufacturing Company forfeited. The action was taken with the authorization of the Attorney-General of the Province.

$10,000,000 Development at Spruce Falls

If the Ontario Government can be prevailed upon to build a 28-mile extension of the Temiskaming and Northern Ontario railroad, north of Cochrane, it is stated that the Spruce Falls Company, Limited, which has a sulphite pulp mill at Kapuskasing, may embark on a scheme of development which will result in the expenditure of $10,000,000 in this section during the next few years. It is understood that if a solution of the transportation problem is arrived at $5,000,000 will be spent at Kapuskasing and a similar amount on power development on the Matagami River at Smoky Falls. The latter falls are the largest north of Cochrane. There is a fall of 76 feet, and the waters of three rivers, Matagami, Kapuskasing and Ground Hog flow over it. It is estimated that it can develop up to 200,000 h.p. The company's large limits are in the vicinity.

New Paper & Textile Machinery Co.

SANDUSKY, Ohio, November 3, 1924.—In order to more clearly indicate the nature of its business, the name of the Sandusky Foundry and Machine Company has been changed to the Paper and Textile Machinery Company.

For a number of years this company has manufactured machinery used in paper and textile mills and it was the desire of the officials to more clearly set forth in the name of the organization the nature of its products.

The change in name does not change the organization or the policies of the company way, it was announced by officials, and the Sandusky Foundry and Machine Company was incorporated in 1904 and for 20 years has been looked on as one of Sandusky's most substantial industrial institutions. During the war it manufactured periscope tubes for the navy.

CHICAGO TRADE LOOKS FOR REAL BOOM AFTER ELECTION

Paper Men Believe Many Orders Which Are Now Being Held Up Will Come Through as Soon as Presidential Issue Is Decided—A General Decline in Board and Container Prices Is Reported—M. F. Gallagher Takes Sales Position With Lindley Box and Paper Co.—American Bank Note Co. Making Plans for Large New Plant—W. M. Plant Becomes Member of Bradner-Smith Staff.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, Ill., November 3, 1924.—Another week, it is said, will have a great influence on the paper market. Although the paper men dislike to admit the great paper industry should be affected by a political issue, factors here are frank to say many orders are being held up pending the decision on November 4. Most noticeable of the effects will be in the fine paper division which has commenced showing up somewhat in actual orders booked thus giving the mills a better opportunity to catch up on the several weeks' business on their books. Not only that, but credits are being watched right now so that there might not be any large outstanding figures on books at the turn of the new month. Prices have not been changed in the last month or more and the market seems very well stabilized at present.

While the nation awaits its day to choose a chief executive, printers slacken up to a certain extent. They are not as busy as when the fall season opened nor have they as much business booked as was anticipated for this period back in late August and early September. Delay in advertising campaigns cuts a swath in printers' sales volumes to no mean degree. In the next week every one expects dummies of large advertising campaigns to come through for action. A generous quantity of business lies in that direction.

Big Consumers Take Coarse Papers

Stability in coarse paper markets is a reality with firm tendencies toward upper levels, but nothing definite on this is promised for immediate future. The fact is, coarse paper mills have been pressed for delivery on orders which have piled up four to six weeks high. It has made them rather independent, especially in the east, and kraft mills hold firm for 6¼ f. o. b. mill. Big consumers are buying heavier now because they feel prices will advance and want to stock up requirements for a reasonable period before higher figures go into effect. Both white and manila tissues are slightly lower in price because of competitive reasons. Northern producers are shipping their tissues into this territory at the lower figure to meet quotations of other mills and it is said to be easy to acquire both manila and white in 24 x 36 and 20 x 30 inch sheets respectively for not higher than 7 cents.

Board and Container Prices Drop

Declines in board and container prices are reported. Since paper stock went down all along the line board and container producers felt justified in chalking up new f. o. b. mill quotations at about $2.50 per ton under what prevailed a few weeks back. Manufacturers are still fairly busy, however, with some orders ahead but not nearly so much as in other branches of the paper industry.

Paper stock remains practically unchanged with but a few exceptions. These are only minor, being merely adjustments either way to be entirely in line with prevailing conditions. Prices are back now to about the same level of two months ago. Demand is toned down somewhat with plenty of stock on hand to meet requirements.

Roofing stock stays at its high level. On the other hand roofing manufacturers are not now very actively in the market for supplies. However, they have sold a large quantity of their production this year and expectations are that they will return strong again very shortly.

Lindley Box and Paper Adds Gallagher

A new addition has been made to the sales staff of the Lindley Box and Paper Company, of 30 N. La Salle street, in the person of M. F. Gallagher, who comes to the concern from the retail stationery industry of the Windy City. The Lindley Box and Paper Co. manufactures a specially lined folding paper box suitable for stationers. Mr. Gallagher will devote his time to promoting its sale in Oklahoma, Kansas, Missouri and Colorado. He will call on retail stationery firms in that territory. Before joining this company, Mr. Gallagher was connected with the Sheaffer Pen Company, in its Chicago office, the S. D. Childs & Co., stationers of this city, the Samuel C. Tatum Company, manufacturers of loose leaf equipment, and preceding all these connections as manager of the Desplaines street store of P. F. Pettibone & Co., retail and wholesale stationers.

American Bank Note Plans Huge Plant

One of the largest and most complete printing and engraving plants in the world will be built by the American Bank Note Company, at Michigan avenue, East 37th street and East 37th place. The block comprising approximately 100,000 square feet, has been acquired by the American firm and plans for the new building will soon be under way. No architect has been selected as yet, but members of the company's art staff have prepared a sketch of the exterior according to the ideas of H. Victor Keane, vice-president of the company. This will serve as the basis for architect's plan.

The building will be four stories in height with a high basement and ornamental towers at each corner, topped by a taller tower in the center of the Michigan avenue facade. The center of the building will contain the pressroom, 150 by 250 feet in size, surrounded by a mezzanine balcony for visitors and surmounted by an enormous glass dome. The central tower will contain a clock and set of chimes. Special attention will be given to comfort of customers who are required to execute large bond and stock issues and the rooms in which the signature machines are installed, to permit signing of many documents simultaneously, will be elaborately finished and furnished.

The American Bank Note Company engraves and prints bank notes, bonds, stock certificates and stamps and does other engraving, lithographing and printing.

W. P. McNulty Goes to Sulphur Springs

To enjoy a much needed rest from the press of business affairs, W. P. McNulty, of the McNulty Paper and Twine Corporation, 535 W. Chicago avenue, has left for about twelve days at Sulphur Springs, Mo. Mr. McNulty intends to spend the entire time free of business cares and participating in the healthful privileges which this famous place affords.

W. M. Plant Joins Bradner-Smith

His many friends and acquaintances in the paper industry, particularly in the central west and Chicago, will be interested to know that W. M. Plant has joined the sales staff of Bradner-Smith & Co., one of the largest paper houses in this territory, and which not long ago moved into its handsome new building just west of the Loop district. Mr. Plant is very well known here having formerly been associated with the paper firm of Plant, Ties and Gould Paper Company, of Chicago.

Mellenville Paper Co. Shut Down

MELLENVILLE, N. Y., November 3, 1924.—The Mellenville Paper Company has closed down its plant here for the winter at least, and it is uncertain just when operations will be resumed. Serious illness in the family of R. W. Moore, the treasurer of the company who will spend the winter in California, is given as the reason for the suspension.

PHILADELPHIA PAPER TRADE QUIET PRECEDING ELECTION

Attitude of Caution Assumed Pending the Developments of the Political Situation—Orders For Practically All Varieties of Paper Small and For Immediate Requirements Only—Although Two Representative Mills Are Out of the Market Kraft Prices Continue Unsteady — Fine Paper Division of the Philadelphia Paper Dealers Association Meets—Distributors Appointed for Brandywine Bond.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., November 3, 1924.—In keeping with the industrial world generally, the paper trade has assumed an attitude of caution, awaiting the developments of the political situation and is settlement at the polls. Salesmen in making the rounds of the various business houses are told that there will be no sizable orders forthcoming until after election time and whatever buying is being done is of the hand to mouth sort.

Fine Paper Market Weak

While there is well distributed demand for small orders of books, coated and news print as well as a few of the bond papers there is a tendency in the fine paper market towards downward revision in prices on the part of the mills. This break in the price quotations is confined to the cheaper grades. As an example of the prices to which these have been lowered one mill offers No. 1 Machine Finished Books of fair quality at 6½ cents; another mill has been in the local markets with typewriter second sheets of very fine white folio, 9 or 10 lbs., unglazed onion skin at 35 cents per hundred f. o. b. mill. Cheap writings have been quoted at 7 cents f. o. b. mill.

Kraft Concessions By Mills

Although two representative mills are not now in the markets there still continues to be offered to the trade attractive price concessions by the manufacturers of kraft. The past week made a new price record when mill quotations reached the figure of 4½ cents. A large manufacturer with 300 to 400 tons of assorted stock sizes, in all weights, on hand either in sheets or rolls, offered to sell delivered in Philadelphia his products at 4⅞ cents.

Fine Paper Discusses National Meeting

A survey of the transactions of the Fine Paper Division of the National Association was placed before the members of the local fine paper section of the Philadelphia Paper Trade Association by the delegates to the national gathering held in Chicago in October, Leon Beck of the Charles Beck Company and Norbert A. Considine of the Paper House of Pennsylvania. The entire proceedings were laid before the local body at the monthly meeting held last Thursday in the Bourse, with Mr. Beck giving a detailed account of the sessions and discussions and chiefly concerning the problems of numerous small orders and broken packages and the handling of these. Mr. Considine supplemented the survey given by Mr. Beck with comments on the findings of the Committee made up of authorities on fine paper distribution, appointed to make a study of these phases of the trade and the results obtained following up his remarks by a report of the special meeting held jointly with the National Association gathering by the U. T. A. and representatives of the Fine Paper Division of the national body, in Chicago. Mr. Considine, who was appointed by the National Association as special representative to the U. T. A. conference, discussed with the national organization of printers the Graphic Arts Expositions and their relation and benefits to both printer and paper men. A preliminary report of the plans of the Special Committee appointed by the local Association to study the problems of broken packages and small orders was given by the members of that Committee comprising Leon Beck, Leonard Raymond, of the Raymond McNutt Company, and Mr. Considine. These plans were along the most practical means for solution of the broken lot and small order business and the Committee was authorized to place them in operation and to report its findings at a later meeting.

All the houses represented at the meeting reported on the subject of "Return Merchandise." This topic was placed before the members at a previous session of the local fine paper distributors and they were requested to make a study of the situation in their individual firms and to report at this meeting. It was found that the average return of merchandise among the fine paper stocks was less than one per cent of the quantity of orders shipped. The members of the Association made a study of the return of merchandise for the purpose of placing a small charge for the overhead of handling the orders but with the finding of so small a percentage of returns it was decided to abandon this plan. The dealers found that in most cases merchandise was returned because of the mistakes of the shipper in substituting the wrong goods for those actually ordered and therefore the customer was not responsible for the wrong deliveries and therefore not liable for the extra cost of handling the returns.

W. C. Hamilton & Sons' New Lines

Since introducing its newest addition to the line of papers manufactured in its Miquon Mills, near Philadelphia, the William C. Hamilton & Sons Company, Manor and River Roads, has secured new distribution centers for the Brandywine Bonds. These bonds are the first to be manufactured by the mills, production heretofore having been concentrated on book papers, ledgers, supers, mimeograph, vellum and envelope stocks, marketed under the marks of Hamilton Bright White English Finish and Supers, Hamilton Mellow Book, Hamilton Bright White Vellum, Hamilton Ledger and English Finish Envelope papers. The paper houses which have been appointed to distribute the Brandywine Bonds are: Lindsay Brothers, Philadelphia, Arnold, Roberts Company, New Haven, Conn., and Boston; Charles W. Beers Company, Baltimore, Md.; Union Paper and Twine Company, Detroit, Mich., and Coy, Hunt Company of New York. The Hamilton mills are producing the bonds in No. 1 sulphite sheets in white and six colors as a mill line. Recently the mills came under the control of President Howard W. Taylor, of the company, who long was identified with the Dill & Collins Company of Manayunk. The mills are among the oldest in this section of the State, having been founded back in 1853.

Keystone Mills To Rebuild

Pending the adjustment of the insurance and the payment of $150,000 damages caused by the fire which destroyed several of the buildings and machinery of the Keystone Paper Mills, of Upper Darby, the mills have been closed and will not reopen until such a time as the insurance companies involved in the indemnity make settlement. It is the plan of the company, of which W. Allan Lindsay is head, to rebuild the damaged buildings which were destroyed when the settlement is effected. The mills were destroyed last May following an explosion in the waxing department. The mills are the old C. S. Garrett plant established back in 1865 and of recent years producing krafts and waxing products.

C. S. Garrett & Son Corp. To Expand

A new Camden headquarters will be opened by the C. S. Garrett & Son Corporation, 20-22 S. Marshall street, for the sale of roofing and building papers. The new quarters will be located at 1128-1130 Kaighn avenue, and will be under the management of John Coffey and Harry Sarish of the sales organization. The new branch will distribute roofings and building papers. The Garrett Company has two other local distribution branches at 3651 Market street and Frankford and Torresdale avenues. President Batchelor, though having passed the fourscore milestone of life, is daily at his desk in the Marshall street headquarters and active in the management of the business. He joined the firm as office boy, becoming its president in 1912. Other members of the firm are Vice-President and Treasurer W. R. Coe and Secretary C. K. Rowland.

Dilts-

The Chronology of Beating Engines

1868—The first Dilts Beating Engine was built.

1905—Dilts perfected the first Rigid Lighter Bar Stand.

1906—Dilts perfected the first practical Bandless Beater Roll.

1907—Dilts perfected the first Inclined Concrete Bottom Beater.

1909—Dilts perfected the first heat treated Special Alloy Steel Fly Bar.

1911—Dilts perfected the first Self-Dumping Beater.

1919—Dilts made the first Spring Cushioned Lighter Bar.

1921—Dilts perfected the first practical Keyed Bandless Beater Roll.

1924—Dilts perfected the new type fast circulating, low power Beater.

"Your Paper is made in Your Beaters"

Look to Dilts for the latest Beating Engine improvements

Dilts 6913

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE ~15 PARK ROW~ NEW YORK CITY

TORONTO TRADE REPORTS DEMAND SOMEWHAT IMPROVED

Although Business Is Considerably Better Than It Has Been Volume Is Still Far From Being Up to Normal for This Time of Year—Lennox Paper Mills of Camden East Which Have Been Closed Down for Some Months Are to Be Reopened Soon By Interests Headed By L. F. and W. E. Houpt of Buffalo, N. Y.—Make Survey for Branch Railway to Kapuskasing.

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Ont., November 3, 1924.—The paper market is getting considerably better although volume is a long way off from being up to normal. Toilet and tissue plants are active and the trend of prices is if anything upward. Manufacturing stationers are quite busy and jobbers report that October was a fair month, some declaring that returns were above those of a year ago while others say they were not quite as good.

There is much speculation regarding the price of news print for the

R. T. FINLAY
New President Canadian Paper Association

coming year and some authorities declare that the figure will be down to sixty-five dollars a ton. The number of new mills and extensions that are mooted would indicate that production will be very much overdone and, if all the projects reported, come to fruition, there will be a big surplus of news on the market. It is freely predicted by followers of the news print situation that the price reduction to seventy dollars a ton, announced to take place in January next, will not be sufficient to meet the situation. The variation in production costs creates a problem that can only be worked out over an extended period. It appears there will be keener competition for the business that is offered.

Lennox Mills Start Up Again

The Lennox Paper Mills, of Camden East, Ont., which have been in liquidation and shut down for some months, will again be put in operation and turn out book and envelope papers. The plant has been acquired by interests headed by L. F. Houpt and W. E. Houpt, of Buffalo, N. Y., and the manager will be Dan Daverin of Thorold who for many years was superintendent of the Montrose division of the Provincial Paper Mills. Before his departure, Mr. Daverin was tendered a banquet by several of his friends at Thorold and presented with an appreciative address and a beautiful Masonic ring. Mr. Daverin has always taken an active interest in baseball and other sports and his removal from Thorold, where he resided for eleven years is greatly regretted.

Will Sell More Timber Limits

The Department of Lands and Forests for Ontario is advertising for tenders for the sale of more timber limits. The areas on which cutting rights will be disposed of consist of the west half of Finlayson township, lying outside of Algonquin National Park; timber berth No. 40 in the Rainy River district and the timber in the township of Peck, Algonquin National Park. The total areas to be sold cover about 170 square miles.

Paper Men Off on Moose Hunt

The season for hunting deer and moose has opened and many nimrods have left for Northern Ontario. The Hartley Bay Hunt Club, which has its headquarters in the French river district expects to have good luck and among the members who have gone north are I. H. Weldon and S. F. Duncan of the Provincial Paper Mills Ltd., N. L. Martin, secretary of the Canadian Paper Trade Association, George Ball, Toronto, Jake Gaudaur, of Atherly, former champion oarsman of the world, and others.

Burn Half Million Acres Every Year

Dr. Howe Dean of the Faculty of Forestry, University of Toronto, in a recent address at Marmora, Ont., stated that half a million acres of timber were burned in Canada every year. Wood formed seventeen per cent of the revenues of the Canadian railways and seventy five per cent of the soil of Canada was better adapted to the growing of trees than any other product. He said that in the past white pine had contributed more to the wealth of Canada than any other tree. This timber was rapidly disappearing and the object of all forestry was to produce supplies of wood materials for wood using industries, which added greatly to the resources of the Dominion.

Paper Box Men Do Bowling

The members of the Toronto Carton Council and associated members have formed a bowling league. The schedule of games starts this week and much interest has been aroused among the different box making firms. The committee in charge is composed of A. G. Allen of Paper Sales, A. Meredith of the Meredith, Sims Company, Fred Fielder of the Fielder Paper Box Co. and Don Porter of the Rudd Paper Box Company.

Will Enlarge Warehouse Facilities

Dominion Envelope and Carton Company, 150 Duchess street, Toronto have been very busy of late and recently purchased an adjoining parcel of land, the buildings on which are being wrecked, in order to clear the way for the erection of an addition, which will be used chiefly for centralizing their warehouse accommodation.

Text Book Committee Meets

There was a meeting of the Canadian section of the International Text Book Committee of the Canadian Pulp and Paper Association held in Toronto last week. Considerable progress was made in the preparation of the reports for the annual meeting of the Canadian Pulp and Paper Association which will be held in Montreal in January.

New Paper Mill for Kapuskasing

C. N. R. gangs have been out for some time making a survey of the proposed route of the branchline from Kapuskasing to Smoky Falls, Ont., and it is likely that construction work will start at an early date. The line will be used for the transportation of pulpwood for the five hundred ton, paper mill which the Kimberly-Clark interests, of Neenah, Wis., contemplate erecting at Kapuskasing where the company now operate an easy bleaching sulphite plant of 130 tons

(*Continued on page* 68)

Short Center Drives Are Best

A Pulmax installed in difficult Beater Drive in a Wisconsin Paper Mill.

Why Is This New Short Center Drive Called Pulmax?

Because it actually transmits more power than an equivalent open drive. It can pull the maximum load of which belt and bearings are capable.

With a Pulmax Drive installed, you can forget about belt stretch, belt tension, belt slippage and bearing friction. It is over 97 per cent efficient. Production is always up to normal. In addition, Pulmax saves floor space, belting and cost of motors and generators. Best of all, Pulmax Drives require practically no attention.

S. D. Warren, Cumberland Mills, Maine
Northern Paper Mills, Green Bay, Wisconsin
Nekoosa-Edwards Paper Co., Port Edwards, Wisconsin
Bird & Son, Inc., East Walpole, Mass.
Kimberly Clark Co., Niagara Falls, N. Y., Neenah, Wisconsin
Brown Company, Berlin, N. H.

are among the representative concerns who installed one Pulmax on trial and have since ordered more. Write and ask their opinion.

Practically every installation proves that the Pulmax Short Center Drive is by far the most efficient way to transmit power. You should write for a copy of the Pulmax Drive Catalog.

BIRD MACHINE COMPANY

Pulmax Drive Division

SOUTH WALPOLE MASSACHUSETTS

PULMAX DEALERS

Himmelein & Bailey, Inc., Philadelphia
R. R. Street & Co., Chicago
Transmission & Belting Co., Pittsburgh
Cleveland Tool & Supply Co., Cleveland
Buffalo Mill Supply Co., Buffalo
Teuscher Pulley & Belting Co., St. Louis

Pulmax Drive

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New York Trade Jottings

R. S. Kellogg, secretary of the News Print Service Bureau, spent the latter part of the week on a visit to Potsdam, N. Y.

* * *

L. J. Parant, general manager of the St. Croix Paper Company of Woodland, Me., was among the trade visitors in New York last week.

* * *

O. M. Porter, secretary of the Joint Committee on Approved Chemists announces that the name of Donald K. Pattillo, of the Arrowhead Mills Inc., Fulton, N. Y., has been approved for listing by the Committee.

* * *

Norman Duxbury, director and W. H. Ward, chief engineer of Yates Duxbury & Sons, Ltd., Heapbridge Paper Mills, Bury, England, is visiting a number of mills in this country and Canada to observe conditions and investigate developments.

* * *

The Aldine Paper Mills, Manhattan, have filed articles of incorporation with the secretary of State at Albany, N. Y., through I. I. Haber, 299 Broadway, New York City, as attorney with capital stock placed at $15,000. The incorporators are H. E. Goldberg, C. Shatz and M. Lesser.

* * *

It was inadvertently stated in an obituary notice of J. W. Dolson, secretary and treasurer of the Standard Products Corporation, 152 West 22nd street, New York, that Mr. Dolson was also secretary and treasurer of the American Paper Mills in place of the Ancram Paper Mills.

* * *

It is announced from the office of Secretary Adler, that the next meeting of the National Container Association will be held in New York City, on November 18 and 19 at the new Roosevelt Hotel. This will be the annual meeting of the organization and for that reason every member or interested container manufacturer is urged to be in attendance.

* * *

Coy, Hunt & Co., 392 Lafayette street, New York, announce that they have secured the New York Agency for "Brandywine Bond" manufactured by W. C. Hamilton & Sons, Miquon, Pa. This paper will be stocked in New York and at the mill. The "Brandywine Bond" line will be but another attractive feature of the highly representative stock of white papers carried and merchandised by Coy, Hunt & Company.

* * *

A preliminary conference will be held in New York City on November 19, at the Hotel Roosevelt to take up simplifications in the boxboard industry in conjunction with the Simplified Practice Division of the Department of Commerce. George Gair will act as chairman of the conference and those present will include the membership of the several simplification committees of the four associations interested. While no announcement has been made it is understood that the purpose of the conference is to start the whole program in motion.

* * *

Manager John R. Mauff, of the Box Board Association, with headquarters in Chicago, announced that the next meeting of that organization will be held in New York City, on Monday, November 17 at the new Roosevelt Hotel, on Madison avenue and 45th street. The session will convene at 10:30 a. m. and continue all day meeting. Much of the time will be spent handling business affairs of the association, inasmuch as nothing further will be done in meeting regarding the working day schedule for box board plants until after the first of January.

* * *

The Mathieson Alkali Works, Inc., for the quarter ended September 30, 1924, reports net earnings of $224,134 after depreciation but before Federal taxes, equal after preferred dividends to $1.48 a share earned on the $5,885,700 common stock (par $50). This compares with $266,071, or $1.83 a share, in the previous quarter, and $272,705, or $1.88 a share in the third quarter of 1923. Net earnings in the past nine months were $583,464, or $3.68 a share, on the common after allowing for the nine months preferred dividends, as compared with $1,054,247, or $7.67 a share, in the same period of 1923.

* * *

At the Trades' Political Meeting held Saturday night, November 1, at the Metropolitan Opera House, the Paper Trade was represented by Owen Shepard of the International Paper Company, Frank Harrison of the West Virginia Pulp and Paper Company, Paul E. Vernon of Paul E. Vernon & Co., and A. C. Damon also of Paul E. Vernon & Co. These gentlemen with a beautiful blue banner on which the words "Paper and Allied Trades" in white letters shone out conspicuously, paraded from the stage up the aisle and returned, being cheered by the audience and by many of their associates scattered throughout the house. It is hoped that the industry will make use of this banner as a decoration at the meetings, or annual dinners of the National Paper Association, and the American Pulp and Paper Association. It belongs to the trade and should be used by any group of paper men who have need of same. Application may be made to 22 Reade street, where the banner will be stored.

Lawless Paper Co. Plant Burned

[FROM OUR REGULAR CORRESPONDENT.]

ROCHESTER, N. Y., November 3, 1924.—Fire leveled the plant of the Lawless Paper Company in Penfield, October 25, with a loss loss estimated at $100,000 by David T. Lawless, president.

Employees on the night shift discovered the blaze in the boiler room shortly after 6 o'clock. The building was enveloped in flames and beyond saving when firemen arrived. Employees had barely time to escape.

Penfield firemen, with assistance from Rochester, East Rochester and Fairport, fought against the handicap of low water pressure and dense smoke. Their movements were hampered by the mill stream which ran along one side of the factory.

The plant provided Penfield's principal industry. A large quantity of stock was destroyed, with two carloads which were just to have been shipped.

The factory was a two-story brick and wood structure. Since the Lawless business was established in Penfield in 1881, their plants have been destroyed four times by fire.

P. H. Glatfelter Co. Made No Reduction

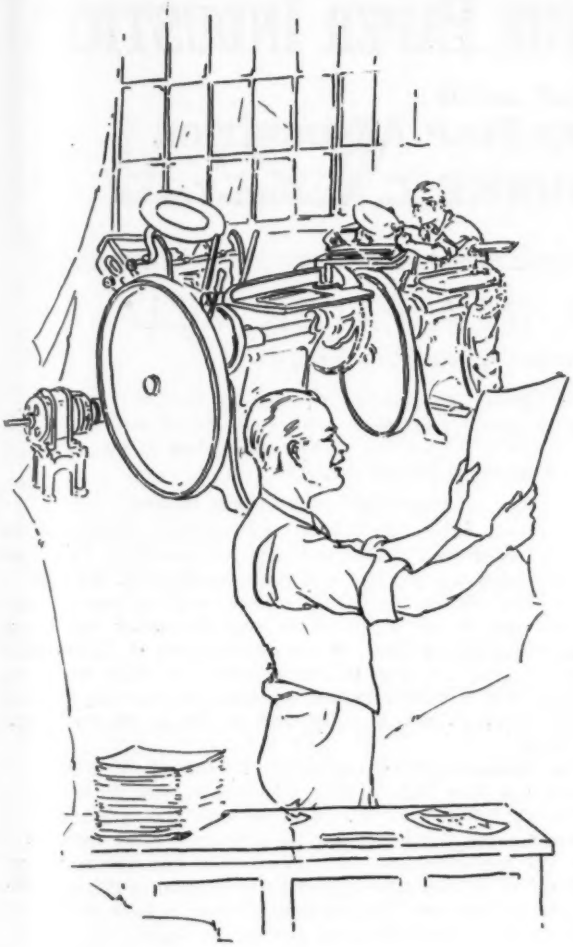
The P. H. Glatfelter Company, Spring Grove, Pa. writes:—

"Announcement appearing in the October 30 number of the PAPER TRADE JOURNAL under Philadelphia dating, that P. H. Glatfelter Co. of Spring Grove, Pa., has reduced the price of Book papers, and cheaper grades of Writings one-half cent per pound within recent days is entirely erroneous. This Company has made no announcement of any change in price, and states that prices are firmer now than they have been for some time. There is no foundation, whatever, for the statement as printed."

F. C. Mousley Goes with Uncas Paperboard Co.

[FROM OUR REGULAR CORRESPONDENT.]

NORWICH, Conn., November 3, 1924.—Frank C. Mousley, formerly the Inland Paper Company, of Versailles, Conn., and the National Paper Products Company of Stockton, Cal., has joined the Uncas Paper Board Company here as mill superintendent. Mr. Mousley succeeds Joseph H. Eilers, who has resigned to take up a proposition in New York State.



Printers Want These Qualities *in* Paper

Every printer wants to achieve best results at the lowest possible cost, and certain things are necessary in the paper that he uses.

1. The stock must be of even caliper. This is especially true in book and bond papers on which halftone cuts are to be printed.
2. The paper should be free from lumps and spots, not only do these imperfections cause printed matter to appear unattractive but also a lump in the stock is apt to seriously damage an expensive engraving.
3. Good formation is always an argument that a printer will consider; the better the formation of the paper he uses, the better results he obtains.
4. If he is printing from a roll, the fewer breaks in that roll, the fewer stops necessary on his press. No matter how carefully a break may be mended, it is very apt to tear when submitted to the strain exerted by the press.

All of these qualities are possible in paper made on machines equipped with Voith High Pressure Stock Inlets.

We have ready for you, your copy of an attractive booklet giving full particulars regarding the Voith Inlet and what it is doing for manufacturers of the many different kinds of paper all over the country.

Write for it today. Learn of this latest development in paper making.

VALLEY IRON WORKS CO.

APPLETON, WISCONSIN

New York Office: 350 Madison Avenue

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Conducted by THOS. J. BURKE, C.A., Sec-Treas

BUDGETARY CONTROL IN A PAPER MILL*

By E. B. Gray, Auditor of the S. D. Warren Co., Cumberland Mills, Me.

About a year ago Mr. Mudgett, of your association, spent a few hours in my office in Boston, at which time I explained briefly to him some of our accounting and statistical methods. Apparently he thought well of our system and suggested that I explain our budgetary methods to you gentlemen.

We have been operating a budget now for about five years, and possibly some of our ideas and experiences may be of interest to you. Before I proceed, please let me say that we do not pose as budget experts or even think that we have discovered something new in management problems, but we do know that we have finally secured the co-operation and support of our executives, and we believe that our ideas have helped in solving some of the problems which have arisen during the three troublesome years just passed.

To my mind, the one big reason why more companies don't attempt budgetary control is because it sounds technical, any system looks intricate, and they feel that it is only another one of those complicated additions to their statistical work which will only increase their clerical force and produce a maze of figures of questionable value; and, besides, their business is different, you know.

From a Different Angle

We tackled this problem from a different angle. Don't think our executives ever commissioned us to install a budget, or asked us to give them suggestions on the important questions of management which confronted them continually. Rather, they were inclined to ridicule any general program covering a year's operations. In the first place, it couldn't be done, and, besides, why should the plans and policies of the company become the property of the whole organization; but, privately, between you and me, it was something different than this even. You know, "figures never lie, but liars do figure," as the saying goes. While it isn't very nice to use such an expression in discussing your own company, it is a fact that most business men like to prove their statements and defend their policies with so-called "facts." Now, these facts can be presented with very little fear of contradiction if no one else has the accurate information. I don't say that any figures were compiled with the intent to deceive, but I know that almost any man can prove his point by judiciously selecting his figures and all items that would cause complications can be eliminated. The fallacy of this method of operation was the divergent views held by our executives on many matters, backed up, as they said, by their facts and figures to prove their position. How much better it would be, we argued, if everyone had one set of statistics, if everyone had a broad general program to work with, and if each department's activities were controlled by this general budget; but, oh! no, it would never do for our company.

Began Gradually to Take Interest

Gradually, almost imperceptibly, however, they began to take an interest in our wall charts, particularly our sales quota charts, then other charts and reports were given consideration, and after a short time our advice was solicited as to what we were expecting in the way of cash collections, or what the outlook was for the liquidation of bank loans, or how our inventory of finished goods was affecting our financial requirements. In other words, we simply took it upon ourselves, in connection with our statistical and accounting work, to install what we like to call our "budget system."

No one has ever been appointed "Director of the Budget," or given any other high-sounding title, and no separate room with elaborate furniture has ever been set aside for such a dignified personage, but it is a fact that our program is given consideration by our executives, and, after all, that is what counts anyway. Therefore, the first essential that I want to leave with you is simplicity of operation. This tends to eliminate possible friction and obtains the results without any ostentatious display.

Results Without Friction

You know if a man is given the heavy title of "Director of the Budget," and walks around as if the weight of the whole world were upon his shoulders, he will surely find it difficult to secure co-operation from his associates in business. All department heads are more or less jealous of their own work, and are inclined to look with suspicion on any outsider trying to check them up or restrict their field of operation. However, we found that they were all glad to know that a broad comprehensive plan had been worked out and accepted by the directors of our company. Since then, by using a certain amount of tact and discretion, we have obtained all the results that we had ever hoped for without any friction whatever. We found that the easiest way to secure their active co-operation was by explaining the general program to them and acquainting them with much information about the company's policies and past history, and then showing them the relationship of their particular function to the whole scheme.

The Problem

Now for our problem: Business is conducted primarily for profit, and by profit we mean a legitimate return on all the capital invested

*Address given before the Connecticut Valley Division of the Cost Association of the Paper Industry, Nonotuck Hotel, Holyoke, Mass., October 21, 1924.

Established 1886

L. O. W.

Having chartered a number of steamers to bring pulp supplies for our customers by Last-Open-Water from abroad for consumption during the coming Winter we offer the use of these facilities which may save you considerable money.

We have splendid proposals to make on good qualities of Bleached and Unbleached Strong Sulphite, Mitscherlich, and Kraft Pulps; also Wet and Dry Ground Wood.

M. GOTTESMAN & COMPANY

—INCORPORATED—

18 East 41st Street
New York, N. Y.
U. S. A.

European Offices:
Stureplan 13,
Stockholm, Sweden.

in it. Remember, I said all the capital invested, which means capital stock plus undistributed surplus. Therefore, our first step is to determine how much profit we should make during the coming year.

We tackled this problem from the standpoint of corporate requirements. We had certain definite obligations, contingent about earnings, I admit, but nevertheless definite in that they called for payments of cash at regular periods during each year. These corporate requirements can be summarized as follows:

1. Dividends on Preferred Stocks.
2. Government Taxes.
3. Sinking Fund Purchases for Retirement of Preferred Stock.
4. A reasonable and fair percentage of earnings on our Common Stock and Surplus.

(a) This latter requirement would call for a cash distribution only as the directors thought it advisable. A good proportion of it must be retained in the business if the company is to continue its normal yearly growth and protect itself from periods of depression.

Definite Goal as to Profits

Now, this calculation gave us a definite goal as far as profits were concerned. Whether we reach it is another question, but, at least, we all know what the ideal condition really is. If more companies in our industry would consider their earnings from this angle and really make an earnest effort to attain their mark, we would find less price-cutting and unfair competition, and all of us would prosper to a greater degree. I cannot say that we have reached this Utopia as yet, but we are trying to do our part, and none of our paper is sold unless it can show us a profit, and our whole program is aimed at the mark of a fair return on the total capital invested in it. This profit can only be made through the medium of sales. Hence our first requirement is a forecast of net sales for the coming year. We have the actual history of past years, and by reading the predictions of the most prominent men of business, and keeping informed generally by means of trade and financial papers, we, ourselves, can arrive at an estimate of this year's activities. For instance, last year we decided that, in view of business conditions generally, and because of our study of our industry specifically, 90 per cent operation of our plant capacity would be a reasonable budget figure to set. After consultation with the sales manager this figure of tonnage was accepted. Next the question of price was considered. The sales manager committed himself on this proposition, so any change in prices during the year would change our budget figures completely, and he knew the resulting readjustment would reflect somewhat on his judgment. So careful thought was applied to the matter, even to the extent of the sales manager seeking the advice of his associates in the office and out in the field. We finally decided that prices would remain firm and our budget was drawn upon the basis of our then prevailing prices.

Survey of Manufacturing Facilities

The next logical step was the survey of our manufacturing facilities. Our product is divided into approximately forty different grades of paper. Some of these grades require special machinery in their manufacture so their production possibilities are definite. Then we have the actual history of our past sales by grades which show us whether a particular grade is increasing or decreasing in sales. Next, our Sales Department was requested to study this problem of grade distribution for the coming year, and, in cooperation with the Production Department, and after study of our past performances, we arrived at what we considered our expected grade sales, the total of this tonnage, of course, equaling 90 per cent of actual manufacturing facilities. We knew what our average selling price was for each grade, so it was an easy matter to arrive at our total estimate of net sales for the new year.

Estimated Receipts and Expenses

Now our preliminary budget was under way, and the next step was to construct a cash summary of estimated receipts and expenses. Our expected sales would result in the collection of cash, of course. Our past experience gave us an idea of seasonable fluctuations in sales by months, so we determined how much cash we could expect each month. Our accounts are so regular we can practically count on the collection of each receivable in 30 days, so our cash budget was framed on this basis. Other income was fairly well known, such as stock sales to employees, interest receivable and miscellaneous receipts.

Division of Expenditures

Having therefore determined our expected cash receipts divided by months, the next proposition was the division of expenditures. First and most important in this classification was the cost of raw materials to be purchased. Our purchasing agent was consulted and acquainted with the proposed manufacturing schedule of 90 per cent of capacity and given the expected grade distribution. Our records of actual usage of materials for past years were available. He gave the matter of prices of raw materials careful study, consulted with the firms that supply us with our raw materials in an endeavor to ascertain the probable market trend of each of the commodities and finally submitted a price scale which represented his best judgment on this important problem. From our schedules of actual quantities of material used during the previous years, we were able to determine the probable usage of each commodity, and since our price schedule was already available, it was but a very simple calculation to arrive at the total value of the materials which would be used in producing our 1924 paper. This figure was adjusted somewhat to allow for increases or reductions in our inventory since we did not have an entirely satisfactory distribution of supplies on hand. This was accomplished by determining what should be the minimum and maximum limits for each item, and in deciding on the cash requirements for purchases during the year we allowed for the building up or decreasing of the various commodities to meet these limits. An analysis of cash required for the purchase of materials by months was then drawn up.

Other Cash Expenditures

Other items of cash expenditures were considered, such as salaries, administrative expenses, taxes, insurance, interest, dividends, etc. Our mill departments submitted their cash requirements for payroll and miscellaneous expenses all drawn on a 90 per cent of capacity basis, and a further subsidiary budget was obtained from our Woodland Department representing their expected cash expenditures for 1924, also based on the 90 per cent figure. This latter subsidiary budget is a very important one, indeed. When you realize that it takes approximately 18 months for wood to reach our mill after it has been cut on our own operations you can realize how necessary it is to carefully consider the probable usage during the coming year, and the adjustment of inventory desired. A company can lose a great deal of money on their wood purchases if their estimates are not carefully watched. The quantity of wood which is either cut on our own operations or bought in the open market is very definitely set, based on our expected business, and our cost requirements for this commodity are carefully detailed. The monthly reports are studied very diligently, and any unexplained variations are made the subject of much investigation and explanation.

A Complete Cash Budget

Now we were able to compile a complete cash budget, divided into monthly divisions, which outlined our expected cash position very clearly. It was then an easy matter to forecast the probable loans which would be necessary to enable us to carry out our expected program, and also to determine which months would show cash gains sufficient to reduce our bank obligations. At that time a very definite goal of net reduction in our bank indebtedness was decided upon, and I am pleased to say has been faithfully carried out so far this year.

Instant Return on the Investment!

A New York mill started its new BELOIT and was making marketable 20-pound paper in counter rolls *15 minutes after the stock was turned on the machine!*

A BELOIT starts in *producing.*

Beloit Iron Works — **Beloit, Wis., U.S.A.**

Established — Since 1858

In roughly outlining our budget system to you, I have mentioned numerous estimates which were submitted to us by our various departments representing many activities. These may be summarized as follows:

General Budget

Sales Department—
Product to be Made.
Grade Distribution.
Price Trend.

Purchasing Department—
Price of Commodities for New Year.

Statistical Department—
Usage of Raw Materials of Past Years..
Average Office Expenses of Past Years.

Mills—
Cash Budget of Their Requirements.
Their Program of Improvements for the Year.

Woodlands Department—
Cash Budget of their Requirements.

Advertising Department—
A Detailed Summary of their Program for 1924.

Accepted as Program

When the budget was finished it was carefully considered by the executives of our company, and, finally, after some changes were made, it was accepted as the program of the company for the year 1924, by a formal vote of the directors.

You can see from this action of our directors what progress our budget scheme has made, realizing the lack of interest that met our first endeavors. Now they consider it as a regular part of our office routine and discuss all the items in it very carefully before accepting it.

So much for the budget itself, but how do we watch it, and in what way do we find it of value to our company?

How Progress Is Watched

First, how do we watch our progress? Each month we include in our executive reports an analysis of cash receipts and disbursements, compared with our estimate for that month. On the same schedule we show the cumulative figures to date, so that we can see whether or not we are following our budget figures. All variations are analyzed and explanations are requested from the department head whose expenditures are exceeding the original estimate. If the reason is satisfactory to the executives, all well and good, but at least everyone knows the conditions.

Another of our monthly budget reports is a very detailed analysis of our advertising expenses, also compared with the budget estimate. We watch this item very closely, and no increases in their expenditures are allowed. Just recently we noticed that they were spending more money for electros and composition than we originally allotted for this particular function. It was called to the attention of the advertising manager and finally referred to the president, who immediately investigated the affair. Not finding sufficient cause nor any authority for this procedure he issued instructions to the effect that they must keep within the year's appropriation for this item, and they are doing it.

A further report which is a part of our budgetary control system details our improvement and replacement expenditures compared with the original appropriations. This proposition of tying up money in fixed assets is a very important one, and is given considerable attention by our executives. We feel that our budget is a great help in this regard since we can definitely chart our course for a year, knowing our cash condition and because of our ability to measure this requirement with relation to other equally important functions.

Important Facts Charted

In order to keep the general budget impressed upon every executive's mind we keep most of the important facts charted, and it really is interesting to see each man look at them nearly every day. Our daily and cumulative sales charts are watched very closely, and we believe that any daily or weekly chart is particularly interesting. You can stir up more enthusiasm by up-to-the-minute data than by charts and statistics showing only past history. We keep these charts on a wall bracket in our department and encourage their inspection by all members of our organization. In this manner we keep in close contact with every department, and can also acquaint each man with the details of what we are trying to accomplish. Right here let me say a word about employee co-operation. We follow the practice in our organization of giving the important facts about the operation, earnings, and general program of the company to most of the members of our administrative and selling staff. In this way each man is interested in the success of our plans and also feels himself a very important part in our efforts. To our way of thinking, the days of secrecy are over, and the companies that take their semi-executives and other trusted employees into their confidence will receive in return better co-operation and more intelligent effort. All we ask is that the source of their information shall be our department. In that way nothing but the real facts can be spread about.

Revising the Budget

When it becomes necessary to revise our budget, because of unforeseen price increases or reductions, we reflect these changes in our charts and also in our cash schedules. If we have simply estimated our volume of tonnage wrong we do not change it but simply see how far astray our prediction was. If our Woodlands Department, Advertising or Improvement budgets need correction, we usually do this at the end of a quarter, but so far have not found such a course necessary very often. Of course, a general wage increase or decrease in our factory payroll would also cause a revision of the budget.

Don't think for a minute, however, that we are continually changing our original estimate. We would much prefer to have any differences stand out as such and change our budget only when some unforeseen condition arises which renders our program unpractical.

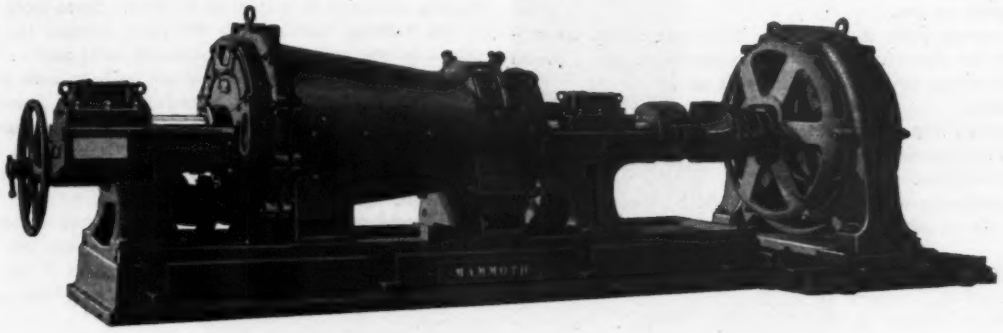
Value of the Work

Now, of what value is this whole procedure? We really believe it plays a very important part in the success of our company. In the first place, we know where we are going; secondly, we know when we stray from the straight and narrow path; thirdly, if any unforeseen contingency arises, we know how to cope with it, judging it entirely with relation to our general program; fourthly, it encourages intelligent co-operation by all our associates, co-ordinating as it does all departments in one grand scheme; fifthly, it enables our directors and officers in the settlement of their management problems and policies, and lastly, it causes each executive to consider his particular problems as a part of the whole scheme and not so important as he might think them to be.

I have prepared a few charts and schedules for your inspection which will show you some of our methods of keeping our budget scheme before our whole organization. Just a brief word of explanation for each of them.

One form which seems to interest our associates very much, but which is really not a part of our budget system, should be mentioned. It is this sheet, kept right up to date every day, and accessible at all times for study. From this schedule we can follow Orders Received, Production and Shipments, comparing them at all times with our 90 per cent program.

You can readily see from all the foregoing that our aim throughout the entire budget program is to furnish accurate, up-to-the-



JUST as it is the combination of the minute fibres on the wire that makes the fine sheet of paper, in the same manner it is the bringing together of the best materials with carefully engineered details that makes our Jordan engines the capable machines they are.

Behind our thirty years of experience as Jordan builders lies a capable engineering force which has spared no effort in making each small detail of our machinery bring full measure of excellence and efficiency to the machine for which it is intended.

The characteristics which determine the fitness of a Jordan for its work, are today carefully examined, the rule of thumb method of buying having been discarded because of more exacting demands on the machine in competitive manufacturing of paper and its products.

Many influences affecting the operation of Jordans are today better understood by engineers, and much important data collected, which, ten years ago, was considered but theory, has been applied in the designing of Jordan engines.

In our Jordan engines, as in no others, will be found a combination of units designed for strength, utility and efficiency together with materials and workmanship of the finest, and we welcome the opportunity to place specifications in comparison with others.

With a range of sizes from ten to sixty tons, in two general types with other special types, mills will find an easier selection in our line, and a more exact selection.

Correspondence solicited.

The Noble & Wood Machine Co., **HOOSICK FALLS, N. Y., U. S. A.**

Canadian Builders: **PORT ARTHUR SHIPBUILDING CO., Ltd., Port Arthur, Ont.**

minute information, classified and compared with a general plan of operations.

Summary

Now for a little summary of some of the points that I have tried to explain to you.

1. The starting point is "Profits." This item should be considered from the viewpoint of corporate requirements which should allow for dividends, taxes and a fair profit on all capital invested in the business.

2. The second step is the accurate forecasting of Net Sales for the year. This estimate is dependent upon a careful analysis of tonnage and expected prices.

3. The purchasing of raw materials should receive much study, particularly the expected price trends and adjustment of inventories.

4. A cash budget should be constructed which would show the cash position of the company by months.

5. Subsidiary budgets should be obtained from other departments such as: Advertising, Mill Improvements and Woodland Operations and incorporated in the general plan.

6. Charts are very helpful in keeping the budget before the organization, particularly current or running charts as we sometimes call them, showing daily, weekly and monthly changes.

7. Revisions of the budget should be made only when absolutely necessary. We feel that it is much better to see a variation between the estimated and actual figures than to see an original estimate so badly distorted by change as to be barely recognizable.

8. The co-operation of all of the organization should be solicited and the budget should be effective without causing unnecessary friction.

9. When the budget routine is finally accepted as the proper procedure it should be formally approved by the directors.

I hope that I have given you some idea of budget methods. It may not be a carefully worked out, complicated routine, but it does seem to suit our needs, and is a means of keeping a definite goal before our organization.

I shall be pleased to answer any questions you may care to ask me, or explain further any points that may have been vague to you.

Terry Flexible Coupling

The Terry Steam Turbine Company, Hartford, Conn., is about to offer for sale for use with all types of equipment the Terry Flexible Coupling which is represented in the accompanying illustration. This coupling is of the pin and bushing type and is extremely simple in design. The materials of which it is constructed have been selected with great care and have demonstrated thoroughly their fitness under actual working conditions.

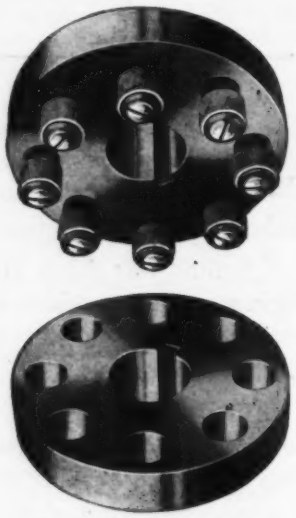
The flanges are machined all over and are made from special composition steel forgings. Steel is used in preference to cast iron because of its greater uniformity and higher tensile strength. One of the commonest faults of other couplings of this same general type is that they are constructed of cast iron. Castings are seldom uniform in density and free from blow holes. Lack of uniformity results in very low tensile strength, and makes it difficult and sometimes impossible to obtain correct balance. Both of these items are of major importance on relatively high speed, as well as on moderate speed apparatus where centrifugal force has a large effect.

The pins are also made of steel. To assure a smooth surface and long life, the cylindrical portion of the pins are hardened and ground. In this way the bushings are free to adjust themselves under load and are prevented from transmitting any end thrust. The pins are provided with screw heads and fibre washers which keep the bushings in their proper location within the driven flange. They may be readily removed with an ordinary wrench.

The bushings, which are the flexible medium, are made from a uniform grade of rubber that has demonstrated its ability to withstand hard usage. They are securely fastened to flanged steel spools which fully protect the ends and inner surface from wear. The rubber is ground to an exact outside diameter so that each bushing transmits its portion of the load. Since there is no chance of the bushings working into the space between the flanges they cannot become enlarged or transmit any axial motion.

All parts of the Terry coupling are made to limit gauges, which assure accuracy and perfect interchangeability. Should the bushings need replacement due to a large amount of misalignment, it can easily be done without any fitting whatsoever. The holes in the flanges are drilled and reamed with accurate jigs so that the pins are equally spaced and parallel to the axis of rotation.

Although every precaution is taken to insure uniformity of the flange forgings, very slight differences in density are unavoidable, therefore, the Terry coupling is balanced after it has been finish-machined. This prevents all possibility of there being any vibration



TERRY FLEXIBLE COUPLING

set up by the coupling. Vibration would lead to wear and rapid deterioration of the connected apparatus.

Aside from the excellency of the materials and the care used in the manufacture of the Terry coupling, it possesses certain features which make it particularly desirable for all classes of service.

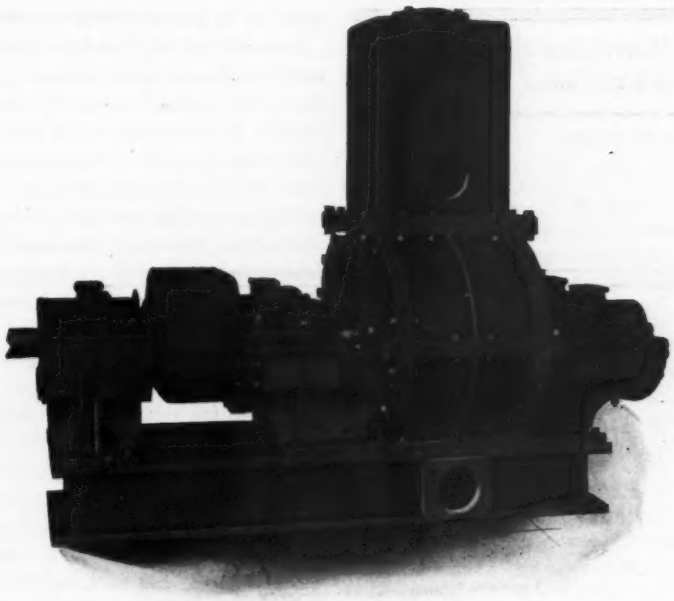
The ratings which are assigned the Terry Flexible Coupling are conservative and are based on many years of experience. Couplings are available in capacities up to 400 H. P. per 100 R. P. M. In all cases it is rated so as to give maximum life and minimum wear. Generally speaking, it is stronger than the shafts on which it can be mounted.

The Terry Flexible Coupling is suitable for use with such equipment as steam turbines, electric motors and generators, fans, pumps, reduction gears, paper machines, coal pulverizers, line shafting, etc.

Conditions Improve in Belgium

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., November 1, 1924.—A report to the Paper Division of the Department of Commerce from Antwerp states that conditions in the Belgian paper industry are more satisfactory. Most of the mills are working full time but production is restricted to meeting current requirements. Prices remain firm as the export market has been fairly active. The demand from the United States, the report states, is less than usual probably as a result of exchange conditions.



The Standard for Suction Roll Service

Connersville Cycloidal Vacuum Pumps

Connersville Cycloidal Vacuum Pumps, manufactured by this company since 1893, are to be found in a majority of the paper mills of the United States and Canada, setting a high standard for dependable and economical service on suction rolls and flat boxes.

Information and quotations may now be obtained, direct from our home or branch sales offices.

The Connersville Blower Co.
Mount St. & Michigan Ave.
CONNERSVILLE, INDIANA, U. S. A.

Sales Offices

53 W. Jackson Blvd. Chicago
114 Liberty St. New York

Connersville

Editorial

Vol. LXXIX New York, November 6, 1924 No. 19
HENRY J. BERGER, Editor

THE ELECTION

The paper industry as a whole cannot fail to be gratified at the result of the national election. The doubt that has bewildered the nation for some months past and that has undoubtedly interrupted business has in terms that cannot be mistaken been dispelled. A close vote throwing the election of a president into congress, which only recently even some thinking people thought not unlikely, would have been a calamity that is perhaps best forgotten with the disappearance of the cause for it.

It is good especially to know that the protective principle, which safeguards American industry from the pauper wages in many parts of Europe, has again triumphed so decisively. The soundness of this principle is bound to become more appreciated in the immediate future than it ever has been in the past.

The result of the election makes it certain that the good work started by the import committee of American paper manufacturers has not been in vain and that it will be able to carry on the program to protect the American paper business from the unfair competition with foreign paper that has been growing altogether too great of late. The committee cannot fail to be stimulated to greater effort by this evidence that the country generally is in sympathy with the results it is endeavoring to bring about.

The paper business is inherently sound, the country is all right and judging from all the present indications one of the most prosperous periods that the American people have ever enjoyed is just ahead. Every one engaged in the paper business should do his utmost now to make times good.

LOCKWOOD'S DIRECTORY OUT

The new edition of Lockwood's Directory of the Paper and Allied Trades is just off the press. The directory with this edition celebrates it fiftieth anniversary. From the first edition in 1873 the directory filled a long felt want and it has always retained its place as the standard work of reference in all departments of the paper business.

The first edition contained less than 200 pages, but it has expanded constantly since that time until the present edition contains approximately 1,000 pages, reflecting the growth and increasing prosperity of the industry as no other record can.

A glance through the first edition discloses some interesting information as compared with conditions as they exist today. That edition of the directory shows that paper machines fifty years ago were for the most part equipped with wires that were slightly more or less than 50 inches and compartively few approached 100 inches in width. The speed then was more frequently less than above 100 feet per minute and fibers other than wood pulp were still the raw materials most employed to make paper. Contrast this with the great machines of 236 inches, with the marvelous machines that are capable of running 1,000 or more feet per minute, and with the fact that the present paper machines are turning the forests of this country and Canada into paper faster than nature is replacing them, and a hurried mental picture may be obtained of the progress that has been made by the paper industry while Lockwood's Directory has been recording its progress during the past half century.

In the 1873 edition there were listed in the United States, 712 firms and 819 mills. The fiftieth edition of the directory lists in the United States, 656 firms, 858 paper mills and 324 pulp mills and in Canada, 95 firms, 72 paper mills and 113 pulp mills.

In comparing these statistics, it should be remembered that fifty years ago, few firms operated more than one plant while several of the big organizations now operate twenty or more and that the mills of those days were small affairs usually turning out only several tons daily while a number of the large paper mills now have a capacity of half a million pounds per 24 hours.

Mills making ground wood, which for some years past, has been the chief paper making material, naturally were not numerously mentioned among the mill entries in the first edition of the directory. Among the few entries of these mills, however, were those under Stockbridge, Mass. of A. Pagenstecher at Curtisville, three miles from Stockbridge, with a capacity of one and one half tons of wood pulp per 24 hours; and the mill of Miller & Churchill at Lyons Falls, N. Y. with six tons of wood pulp per 24 hours. The Pagenstecher plant at Curtisville was the first to make ground wood in this country and the mill at Lyons Falls was that of Hon. Warner "Woodpulp" Miller who was prominently connected with the introduction of the process in this country.

A glance through the pages of the various editions of the directory at the changing equipment of the mills, shows that paper manufacturers on the North American Continent have been keenly alive constantly to the need of installing improved machines as they became available and judging from present indications, this will continue their policy in the immediate future even more than it has in the past.

The passing of time has caused to disappear from the pages of the directory, most of the firm names which were recorded in the edition of fifty years ago, but a goodly number have continued unchanged, or slightly altered in every edition from the first until now. Some of the more representative pioneers who have preserved their identity in the directory for the past half century, appear in a special advertising section in this edition where they tell their own stories of their connection with the industry. They have helped to build the great paper making business here in a way of which they may be justly proud.

Owing to the depression in the industry, the work of correcting the information in the new edition of the directory has been more difficult than usual. This is especially true of the mill section as those concerns whose plants are not operating at present, or only partially operating, have apparently been reluctant to make reports at this time. All of the mills in both the United States and Canada with about half a dozen unimportant exceptions, have, however, been heard from and the data may be depended upon as being as accurate as it is possible to supply under the circumstances. Owing also to the stagnation in the industry, many important changes have occurred in all branches of the business and these have been recorded as accurately as possible in all of the lists.

The department of "Rags and Paper Stock Consumed By The Mills," started for the first time last year, has been found specially helpful by numerous subscribers interested in the raw material business. The mills also apparently have found this department of

advantage as it has been possible to list this information regarding a considerably greater number of mills than when the department was first printed.

Careful revision has been made of all the additional lists in the directory including General Paper Merchants, Rag and Paper Stock Dealers, Paper Box Manufacturers, Paper Bag Manufacturers, Envelope Manufacturers, Pad and Tablet Manufacturers, Paper Specialty Manufacturers, Tag Manufacturers, Wholesale and Retail Stationers, Watermarks and Brands, Trade Associations, etc.

In all the lists, an earnest endeavor has been made to supply the street addresses for firms located in the larger towns and cities. Subscribers to the directory using these lists for mailing purposes are urged to include the street addresses carefully on their mail matter, as under a regulation of the Post Office of about a year ago, mail is apt to be returned if this is not done.

The price of the directory is $7.50. Orders should be sent to the Lockwood Trade Journal Company Inc., 10 East 39th street, New York.

Forest Utilization Conference November 19

The conference on the utilization of forest products, called by the late Henry C. Wallace as Secretary of Agriculture, will be held in Washington on November 19 and 20 as originally planned, announces Acting Secretary of Agriculture Howard M. Gore.

Chief Forester Greeley in an announcement just issued declares that the late Secretary Wallace regarded the reduction of timber waste as one of the most important phases of forest conservation and felt that much could be accomplished in this direction by calling together the leaders in forest-using industries and in the principal groups of wood consumers for a thorough discussion of the subject.

"Officials of the United States Department of Agriculture believe that Secretary Wallace's great service to forest conservation can be commemorated in no better way than by carrying out the conference at the time and in the way he planned," said Mr. Greeley.

Interest in the forthcoming conference is widespread, according to letters being received by the Forest Service. Many leaders in the forest and wood-using industries have already indicatd that they will attend the meeting.

Acting Secretary Gore has again announced that the conference is open to everyone interested in the manufacture or consumption of forest products and that no special invitation is necessary in order to attend the conference.

"I have noted some confusion in regard to just who may attend the wood utilization conference," said Acting Secretary Gore. "I desire to make it very plain that the Department of Agriculture will welcome anyone interested in this important phase of forest conservation. No formal invitation is necessary, but it is desirable that names be sent in as far in advance as possible."

Making Equipment for Paper Mills

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., November 1, 1924.—The Kalamazoo Blow Pipe Company is now working on two large contracts for the J. O. Ross Engineering Corporation, both of which are designed for installation in paper mills. The first is for 700 feet of galvanized ducts, ranging from 3½ feet in diameter to about 12 inches for installation in the new printing shop of the Sutherland Paper Company. This equipment includes a Clarage fan to aid in the distribution of air throughout the large division. The second contract is for a Ross coated paper drying system, ordered for the new mill of the Monroe Board and Lining Company, Monroe, Mich. It provides installation for one coating machine, all the Monroe concern is putting in at this time.

New Electrically Operated Paper Mill

The new plant of the Columbia River Paper Mills in Vancouver, Washington, is unique among paper mills in the Pacific Northwest and is one of the most modern paper mills in the United States.

The commencement of actual operations recently witnessed the realization of a twenty year dream of Mr. Leadbetter, the president of the concern. For nearly a score of years the veteran paper manufacturer had visioned the ideal paper mill, centrally located as to raw material, labor supply, and shipping facilities, and electrified for economical production.

The mill is unique among paper mills because the materials flow through it, from raw stock to the finished product, in one continuous straight line, without crossing each other at various points. The straight line method of manufacturing has proven to be the most economical.

The manufacture of the paper pulp for paper making begins in the sawmill where the bark is first stripped from the logs. Only the slabs of the logs which cannot be used for lumber are chipped and used for pulp. Most every piece of machinery in the sawmill and the chippers are electrified with Westinghouse individual motor drive which eliminates all belting and basements. The sawmill has a guaranteed capacity of 125,000 feet of lumber daily and has already cut as high as 147,000 feet of lumber in a single eight hour shift.

The sawmill unit also supplies fuel material. This fuel, which consists of sawdust and waste is conveyed from the sawmill to the power house by means of a blow-pipe system.

The paper machine is a Bagley and Rewall, 136 in. wide, designed for paper production of 150 to 600 feet per minute and driven by Westinghouse sectional drive. This drive consists of a 200 KW Westinghouse M. G. set, together with a 3 KW and 15 KW exciter set and the control board mounted near the wall between the rewinder and the finishing room.

The paper machine is 212 feet long and consists of a suction couch driven by a 125 hp. motor, three presses each driven by a 60 hp. motor, a dryer consisting of 32-48 inch dryer rolls driven by a 90 hp. motor, and one calender which is driven by a 900 hp. motor. Each motor drives its section of the paper machine by means of a Link Belt chain. The operation of the paper machine is controlled entirely from conveniently located push button stations.

Every record for speedy construction for modern factory buildings were broken when the building was finished in 74 days. The modern electric driven machinery is expected to break many existing records for economic and quantity production.

Bogalusa Enterprise on Kraft

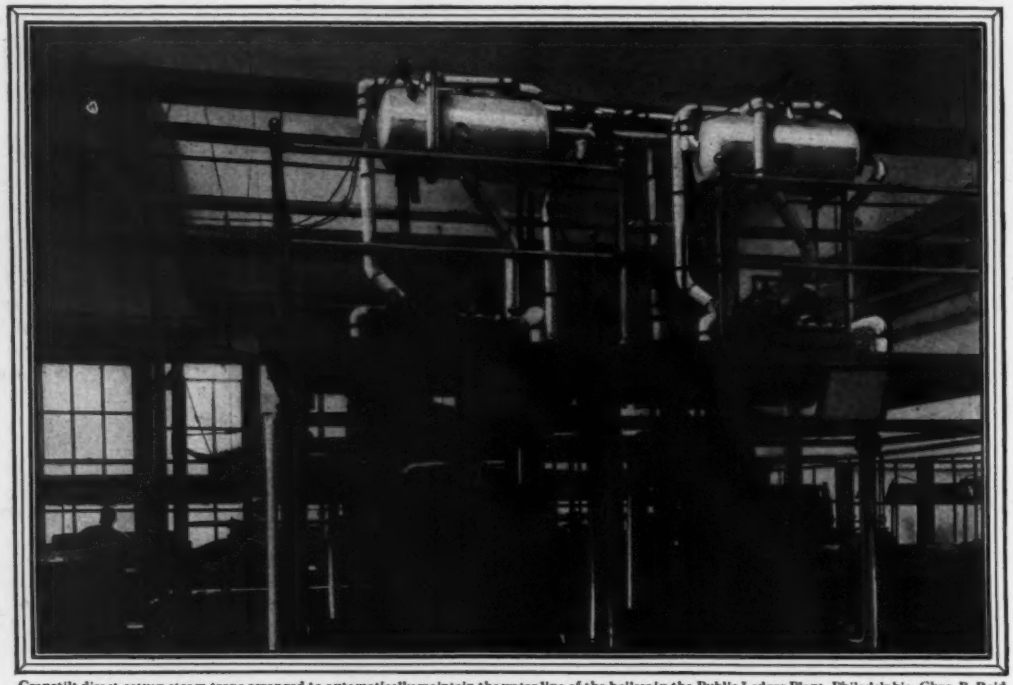
The issue of the *Bogalusa Enterprise* of October 30 was printed entirely on kraft produced on the new kraft Fourdriner of the Bogalusa Paper Company at Bogalusa, La. The issue comprised three sections of eight pages each, two of which were given over almost entirely to descriptions and illustrations of the extensive improvements that the Bogalusa Paper Company has just completed at its plant. The issue was unusually interesting and will be certain to be widely read.

The Bogalusa Paper Company now produces 125 tons of container liner, 80 tons of pulp and 55 tons of Kraft wrapping paper in twenty-four hours.

Eufaula Plans Pulp Mill

EUFAULA, Ala., November 1, 1924.—Efforts are now being made by officials of the chamber of commerce to land a paper pulp mill in the Eufaula territory and to this end negotiations are now being made with one of the largest concerns of this kind in the country.

This paper mill, it is pointed out, could utilize the stumps and branches of long leaf pine trees which are found on the cut over timber lands and thus the land could be more easily cleared.



Cranetilt direct-return steam traps arranged to automatically maintain the water line of the boilers in the Public Ledger Plant, Philadelphia. Chas. B. Reid is chief engineer, Chas. J. Lundstrom is operating engineer. Installation by Christopher J. Doyle, Contractor, Philadelphia

"TRAFFIC COPS" FOR YOUR PIPE-LINES

On pipe-lines and apparatus in use in practically every branch of American industry, thousands of Cranetilt traps are continually on the job removing condensation as fast as it accumulates and keeping all channels clear. Yet no steam or vapor is ever allowed to escape.

Made in three types, these dependable specialties can be arranged to return hot condensation from full pressure lines directly to the boilers, to pump against high pressures out of a vacuum, or to discharge into the atmosphere.

They are simple in design, substantial in every detail of construction and have all working parts on the outside, always in sight. They are supplied to meet all regular and special requirements of capacity, pressure and temperature.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVENUE, CHICAGO
CRANE LIMITED: CRANE BUILDING, 386 BEAVER HALL SQUARE, MONTREAL
Branches and Sales Offices in One Hundred and Forty-five Cities
National Exhibit Rooms: Chicago, New York, Atlantic City, San Francisco and Montreal
Works: Chicago, Bridgeport, Birmingham, Chattanooga, Trenton and Montreal
CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO
CRANE-BENNETT, LTD., LONDON
CIE CRANE: PARIS, NANTES, BRUSSELS

Crane shower control: also

Section of the

Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

PULPING QUALITIES OF FIRE-KILLED WOOD*

Large stands of fire-killed timber—the so-called "brulé"—exist on many of the timber limits of Canadian pulp and paper companies. The greater part of the standing timber in this buulé country has been killed by the effects of fire, and some of it is more or less charred. In such stands deterioration and decay set in rapidly and, in the course of two or three years, render the wood unfit for any use. The fire-killed trees are brought down by the wind and soon become a mass of tangled and rotting wood. When this stage is reached utilization of the timber is impossible.

The general policy of the woods departments of the various companies, at the present time, is to neglect fire-killed areas and much timber which might be economically used for pulping is thus allowed to deteriorate rapidly into such a state that can not be used for this purpose. This policy has been adopted chiefly for two reasons, first, because large stands of sound green wood are accessible, and, secondly, because there is a lack of knowledge of the effect of the fire-killing on the pulping qualities of the wood. The work described in this bulletin was undertaken in order to obtain data on the latter phase of the question, and it was hoped that some idea would be gained of the probable difficulties which might arise in the commercial utilization of this material.

General Outline of Investigation

The general method adopted was to compare the pulps produced from sound and fire-killed wood of the same species cooked under identical conditions.

This was done by carrying out a series of cooks on sound specimens until a satisfactory product was obtained and then applying the cooking conditions so developed to a charge of fire-killed wood. The results from this direct comparison of the two materials gave a working basis from which to develop a method for the cooking of the latter, and the variable factors were then adjusted until a satisfactory product was obtained.

Material

The material consisted of four bolts kindly furnished by the Abitibi Power and Paper Company, and cut on their limits in Northern Ontario. They were graded as follows:

Sound green spruce.
Scorched and fungus-infected spruce.
Sound green balsam fir.
Scorched and fungus-infected balsam fir.

The infection in the fire-killed wood was slight and no steps were taken to eliminate it from the material experimented upon.

*Bulletin No. 76, Forestry Branch Department of the Interior, Canada.

Wood Preparation

BARKING.—The barking of all the material was carried out by hand, a draw-knife being used. The fire-killed wood was thoroughly cleaned of charred wood, but no attempt was made to eliminate the infected portions. In the barking of the green logs care was taken to clean off the cambium layer completely.

The question of the feasibility of using a drum barker on the fire-

COOKING RECORD

PROJECT No. 29. DIGESTER No. 3. COOK No. 21. DATE, 6-6-22

Digester Charge

Chips	Liquor
Species of wood = Balsam Fir (green).	Ccs. of liquor = 4,000.
Weight of wood, wet = 700 gms.	% SO_2 total = 5.65.
Weight of wood, dry = 396 gms.	% SO_2 combined = 1.20.
Moisture content = 43.5%.	% SO_2 free = 4.45.

Cooking Conditions

Time of soaking before steaming = Nil.
Time of steaming = 10.0 hours.
Total time of cooking = 10.0 hours.

Steaming Hours	Temp.	Pressure Gauge	Pressure Steam	Pressure Gas	Remarks
0.0	..	..	...	....	
0.5	72	24	4.9	19.1	
1.0	78	47	6.4	40.6	
1.5	97	59	13.1	45.8	
2.0	111	68	21.5	46.5	
2.5	109	65	20.0	45.0	
3.0	119	70	28.0	42.0	
3.5	121	68	29.5	38.5	
4.0	128	72	37.0	35.0	
4.5	131	70	40.0	30.0	
5.0	134	70	44.0	26.0	Relieved.
5.5	136	70	46.5	23.5	
6.0	132	71	48.0	23.0	
6.5	139	73	51.0	22.0	
7.0	140	71	52.5	18.5	
7.5	140	72	52.5	19.5	
8.0	140	70	54.0	6.0	
8.5	140	57	52.5	4.5	Relieved.
9.0	142	59	55.5	3.5	
9.5	140	56	54.0	2.0	
10.0	142	56	55.5	0.5	

ANALYSIS OF PULP

Yield		Bleaching	Percentage Bleach 10%	15%	20%
Percentage yield of Pulp bone-dry	46.1	Percentage bleach consumption	9.8	14.8	19.7
Percentage of screenings	7.4	% loss on bleaching avg. = 7.7.			
Quantity of fiber	Good	Color; parts black	103	88	64

STRENGTH

Beam Weight of Test Sheets = 75.6

Unbeaten		Beaten	
Average bursting strength	59.3	Method of beating	T.A.P.P.I.
Percentage points per lb	78.4	Average busting strength	71.0
		Percentage points per lb	93.0

TECHNICAL SECTION, PAGE 163

killed wood could not be investigated at this time owing to the lack of the necessary equipment. It would seem, however, that, from the nature of the material, it is very doubtful whether the charred portions of the logs could be removed thoroughly enough by this means. Any char going into the digester would, of course, go through the process unchanged and appear in the pulp. The entire elimination of this material by knife barkers would seem to be the safest course to follow. Mill-scale tests, however, are necessary to determine this question with accuracy.

CHIPPING.—After the logs had been barked they were chipped in the laboratory chipper, the chips being subsequently screened to rid them of sawdust and hand-picked for slivers anl larger pieces. After screening the chips were placed in air-tight containers and kept for use.

Acid-Making

The cooking acid was made in the laboratory apparatus, a high-grade burnt lime being used as a milk of lime suspension and liquid SO_2 as the source of gas. The strength of the acid could be varied over very wide limits, but the apparatus proved rather wasteful of SO_2. The acid was analyzed from time to time during its manufacture and the apparatus so controlled that a finished acid of the desired strength was obtained.

Apparatus and General Procedure

DIGESTER INSTALLATION.—The laboratory digester installation consisted of three steam-jacketed bronze autoclaves, lead-lined, with the covers fitted with thermometer well, pressure gauge, relief cock, and liquor-sampling cocks. The capacity of each autoclave was approximately 500 grammes of bone-dry chips and four litres of acid. The liquor relief line was placed at the bottom but was too small to act as a blow-off valve. A two-horsepower gas-fired boiler supplied steam for the installation, and a superheater was installed in the steam line for use when needed. The autoclaves were piped for steam and cold water, both to the jacket and to the body of the apparatus, so that the temperature of the charge could be quickly

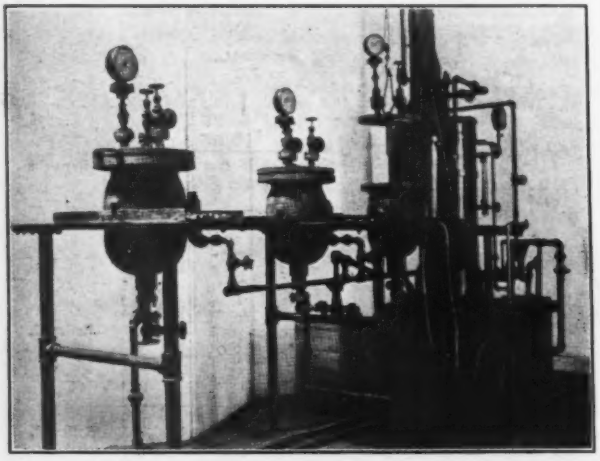


FIG. 1
Laboratory Sulphite Pumping Apparatus

adjusted over very wide limits. The covers were bolted on, a lead gasket being used between them and the bodies of the autoclaves. A set of pulley blocks situated directly over each autoclave was used to lift the cover clear for charging and discharging.

A good idea of the installation is obtained from Fig. 1.

The apparatus was operated as follows:

The requisite charge was calculated from a moisture determination made on the chips and was then weighed out on a large balance. Steam having been raised in the boiler, the chips were charged into the digesters and the lids lowered and securely bolted into place. The volume of liquor required was then syphoned into each autoclave, the valve closed and the steaming started.

The pressure and temperature, during cooking, were regulated according to a predetermined curve, readings being taken every thirty minutes. The times of relief and any other points of interest were noted on the curves. The cooking record and sample cooking chart (Fig. 2) give a very good idea of how the cooks were interpreted.

At the completion of the cooking period cold water was run

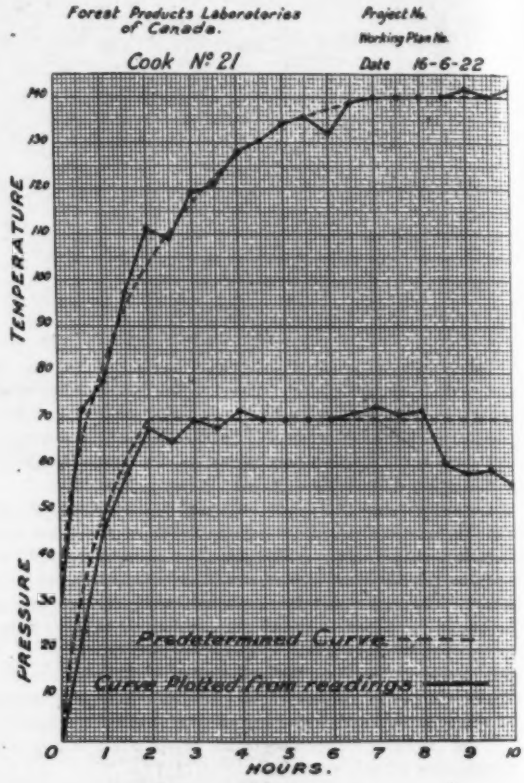


FIG. 2
Sample Cooking Chart

through the jackets and the liquor drained from the pulp. After draining, the autoclaves were flooded with cold water and the lids removed. The pulp was then transferred to screen boxes and thoroughly washed with cold water.

As mentioned in the description of the digester installation, the liquor drain-pipe was too small to use as a blow-off valve so that it was necessary to use some other means of disintegrating the cooked chips. For this purpose a small disintegrator was made with sufficient capacity to hold a complete cook from one digester. A series of trials showed that a ten-minute treatment in this apparatus[1] would give a disintegration as nearly comparable as possible to that obtained by blowing. This time of treatment was therefore adopted as standard and the conditions of disintegration were reproduced as nearly as possible for every charge put through.

After disintegration the slush stock was drained into a small tarred fiber-ware tub, care being taken to wash out the disintegrator thoroughly. The wet weight of the slush stock was then accurately determined and a consistency test, in duplicate, carried out. The

[1]The apparatus is completely described in an article entitled "Routine Methods for the Examination of Wood Pulp Adopted at the Forest Products Laboratories of Canada," by E. Parke Cameron, B.Sc., in the *Pulp and Paper Magazine* for December 21, 1922.

percentage of total yield from the original charge was found by calculating the yield of bone-dry fiber from the results of these determinations.

The separation of the total yield of pulp into screened stock and screenings presented some difficulties and was finally accomplished by designing and installing a small flat sreen.

Screening System

In designing this installation it was desired to find a method of screening which would give results comparable with those of industrial screening, would be quickly and easily operated, and would be capable of accurately repeating these results. A small flat screen seemed to offer the most promising means and accordingly the apparatus described was developed and installed.

A screen box was made, the inside dimensions of which were 21½ by 11¼ by 8 inches, having an area just half as large as that of an ordinary commercial screen plate. This box was fitted with a 1-inch support, 2.5 inches from the floor of the box, to which the screen plate was secured by screws. A moulding was nailed around its upper edges to the side walls of the box to ensure rigidity. The floor of the box was cut out 3 inches from the inner walls, the section thus cut out being trimmed down to give a clearance of one-eighth of an inch between it and the remaining portions of the floor. This section of the floor was secured to the stationary portion by means of a heavy rubber diaphragm, care being taken to make all joints absolutely water-tight. Two connecting rods were pinned in suitable bearings which were bolted to the movable floor, two inches from either end. The two connecting rods were used to prevent any rocking motion of the diaphragm, thus ensuring that all motion would be vertical.

The connecting rods were attached to a one-inch cam shaft so constructed as to give a total throw of one-eighth of an inch to the diaphragm. The cam shaft, supported by three large bearings, carried a 3½-inch flat pulley at its outer end. This shaft was designed to be driven at 800 revolutions per minute, thus giving 800 throws per minute to the diaphragm, this being equivalent to the action of an ordinary industrial flat screen. An orifice was cut in the screen box, level with the floor, and was fitted with a suitable discharge spout to carry the screened stock to the thickener. A special screen plate was designed and constructed for the system and was found to be more suitable than an old plate recut. The slots were 0.010 inch in width and were cut to give the plate a maximum screening area.

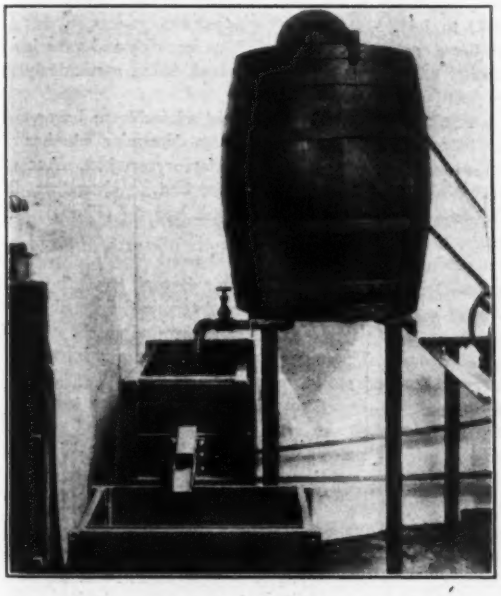


FIG. 3
Small Flat Screen Installation

The screen was fed from a 40-gallon barrel fitted with an agitator and having a control valve on its discharge line. The screened stock was collected in a deep screen tray fitted with a 60-mesh wire and held in a box of similar dimensions to those of the screen box. The discharge from the screen tray or thickener went to waste.

Fig. 3 shows the completed screening installation.

The slush stock was transferred from the disintegrator to the barrel, diluted to a constant volume (approximately 40 gallons) and thoroughly agitated. The screen was started and the feed valve from the barrel opened sufficiently to permit the level of the stock to be constantly maintained one inch above the screen plate. Repeated preliminary trials had shown that these conditions enabled results to be closely duplicated.

This method of screening gave very satisfactory results, though it had one fault, namely, that it allowed slivers, somewhat larger than should be included in No. 1 pulp, to pass through the screen plate. This was probably caused by flooding of the screen plate.

The screened stock from the thickener was again diluted to known volume and its consistency determined. From this the percentage of screened stock was calculated. The screenings were carefully collected from the plate, dried to bone-dryness in an electric oven and weighed. The difference between the percentage of total yield thus obtained and that calculated from the first consistency was due to loss of white water through the thickener. This loss was so small that the percentage figure for screened stock, calculated from its consistency, was disregarded and that obtained, by difference, from the weight of screenings and the total yield was accepted.

The screened stock was then tested for strength, beaten and unbeaten, bleaching quality, and color.[2]

Detail of Tests

In order to arrive at satisfactory methods of operation for the many steps of this procedure numerous tests were made, but as the results obtained are useless for comparative purposes on account of the variations introduced only those having a direct bearing on the conclusions are given in the following tables.

In all tests the empirical standard of seven hours to come to temperature and two hours to come to pressure was adopted, these variables being kept as nearly constant as possible.

Green Spruce

Table I gives the complete data obtained from the cooks on green spruce.

The results of cooks Nos. 5 and 7 show the difference effected by increasing the duration of the cook from 10 to 11.5 hours, the other cooking conditions being kept constant at the given values. The acid used was extremely high in total SO_2, but the results secured are quite normal for customary mill operation, except perhaps the high yields obtained. This peculiarity manifested itself in the preliminary cooks, when it was found that with the equipment used a very strong acid was necessary to obtain anything like the normal pulp in normal cooking time. The apparatus is probably more directly responsible for this than the wood used, although the latter was much greener than that generally used.

By increasing the cooking time under these conditions the total yield of pulp was decreased six per cent with but little change in the screenings. The strength was also reduced both in the beaten and unbeaten states, it being particularly noticeable in the former. The low beaten strength, the ease of bleaching, and the microscropic examination all showed that the stock cooked for 11½ hours was much overcooked. The 10-hour cook, however, was considered normal.

[2]For detailed description of tests see *Pulp and Paper Magazine* of Canada, December 21, 1922, "Routine Methods for the Examination of Wood Pulp Adopted at the Forest Products Laboratories of Canada," by E. P. Cameron, B.Sc.

TABLE I—GREEN SPRUCE

No. Cook	Wt. of Charge Bone-dry	Vol. of Liquor	Analysis of Liquor: Com-bined	Free SO_2	Total	Tem-perature	Pres-sure Lb. Per Sq. In.	Time	Yield Bone-dry	Screen-ings Dry	Strength Mullen Test: Unbeaten	Beaten	Bleaching: Max. Bleach Used	Color of Bleached Sheet Pts.	Aver. Loss
	Gr.	Ccs.	%	%	%	°C.		Hrs.	%	%	Points Per Lb.		%	Black	%
5	484.5	4,000	1.38	5.12	6.5	145	70	10.0	50.7	0.38	29.76	56.68	10.6	24	4.5
7	484.5	4,000	1.38	5.12	6.5	145	70	11.5	44.5	0.42	28.96	35.95	8.4	20	1.5
6	484.5	4,000	1.38	5.12	6.5	135	65	11.5	52.85	0.82	39.08	63.66	19.1	52	4.5
9	497.0	4,000	1.40	4.3	6.5	145	70	10.0	52.6	4.40	37.72	65.3	18.3	43	2.1
8	497.0	4,000	1.40	4.3	6.5	145	70	11.5	44.75	0.42	26.75	38.32	10.6	20	4.4
10	497.0	4,000	1.40	4.3	6.5	135	70	11.5	49.3	1.86	39.02	63.54	16.1	34	5.2

Cook No. 6 was made to determine the effect of reducing both the temperature and the pressure, using the same acid, and the cooking conditions are the same as in cook No. 7, except that the pressure was reduced five pounds and the temperature 10 degrees C. The results showed a higher yield (about 10 per cent) with higher strength and more screenings. The bleaching test showed the pulp to be very difficult to bleach and hence unsuitable for fine papers, but the yield and strength figures, together with its unbleached color, made it very suitable for news print and other coarse papers.

The strength of the acids used in these three cooks was exceptionally high, so that it was decided to ascertain the effect of reducing the strength of the acid on the quality and yield of the product obtained. In cooks Nos. 8, 9, and 10, the strength of acid used was: combined 1.4, free, 4.3; total, 5.7. Thus a reduction in the total strength was effected by lowering the amount of free SO_2 only, the combined SO_2 remaining unchanged.

Cook No. 9, which was a duplicate of cook No. 5 except that weaker acid was used, gave an increase in yield, screenings, strength, and bleach required. The production of such a large proportion of screenings indicates that the stock was coarse and undercooked and, therefore, not as good a product as that obtained from cook No. 6, the results of which it very closely resembles.

Cook No. 8, a repetition of cook No. 7 using the weaker acid, indicates that for a long cook the reduction of the free SO_2 from 5.12 to 4.3 has no effect on the yield or quality of the product. The overcooking of the stock is again clearly shown.

Cook No. 6 gave a product very suitable for news print, so that in the endeavor to duplicate these results with a weaker acid the pressure was raised slightly during cooking. Thus in cook No. 10 the cooking conditions are the same as in cook No, 6, except that the weaker acid was used and the pressure was increased by five pounds. The product was very similar to that from No. 6, though it was somewhat more easily bleached and the yield was over three per cent lower.

Summing up the results obtained on green spruce, when using an acid high in free SO_2 and total SO_2, we find:

(1) A short cook at high temperature and pressure gives a good yield of strong pulp difficult to bleach.

(2) A longer cook under these conditions reduces the yield and strength but gies a very easly bleached product.

(3) A reduction of the pressure and temperature for the longer cooking period increases the yield and strength of the product and also the quantity of bleach required. This condition gives an excellent product for news print and may be taken as optimum for the acid strength used.

When the total strength of the acid is reduced by reducing the content of free SO_2 the above variations in the cooking conditions have the following effect:

(1) A short cook at a high temperature and pressure gives a very good yield of a pulp which has very good strength but is shivey, difficult to bleach, and undercooked.

(2) A longer cook under these conditions gives a result practically identical with that obtained when using the strong acid.

(3) Reducing the temperature for the longer cooking period gave a product very similar to that obtained under the same conditions with the stronger acid, but a somewhat lower yield of more easily bleached pulp.

From the results obtained, it appears that the optimum cooking conditions for this material approximate closely those under which cook No. 10 was carried out.

Fire-Killed Spruce

The conditions which yield a satisfactory product for the green material having been established, the next step in the work was to apply these conditions to the cooking of the fire-killed wood and to determine what effect the difference in the condition of the wood had upon the quality of the product. Various cooking conditions could then be applied until a product was obtained as closely as possible resembling that obtained from the green wood.

The first two cooks carried out, Nos. 12 and 13, were very similar to cooks No. 8 and 9, the acid being but slightly lower in combined SO_2 (4.3 to 1.4).

Both these cooks showed signs of overcooking and gave low yields of a rather weak pulp, the 10-hour cook being particularly poor in this respect.

As a result of these trials it seemed advisable to lower the ratio of free to combined SO_2 in the acid to determine whether an acid so altered would not give a more satisfactory product. Accordingly, in cooks Nos. 15 and 16 the acid used had an altogether different ratio of free to combined SO_2 and still had the original total SO_2 content.

Here again the results obtained showed that too powerful an action had taken place. Both the yields and strength were very low and the quality of the product as determined from the screening and bleaching tests showed that some condition in the cooking was decidedly adverse. The pulps appeared to be a mixture of overcooked and uncooked stock.

Such a condition seemed to point to too quick and severe a cooking, which overcooked the exterior of the chips and only slightly affected the interior portion. To correct this an empirical test was carried out, the same acid being used but both the temperature and the pressure of the cook (cook 14) being materially reduced.

TABLE II—FIRE-KILLED SPRUCE

No. Cook	Wt. of Charge Bone-dry	Vol. of Liquor	Analysis of Liquor: Com-bined	Free SO_2	Total	Tem-perature	Pres-sure Lb. Per Sq. In.	Time	Yield Bone-dry	Screen-ings Dry	Strength Mullen Test: Unbeaten	Beaten	Bleaching: Max. Bleach Used	Color of Bleached Sheet Pts.	Aver. Loss
	Gr.	Ccs.	%	%	%	°C.		Hrs.	%	%	Points Per Lb.		%	Black	%
12	500	4,000	1.3	4.3	5.6	145	70	10.0	42.9	3.65	30.31	36.4	13.1	31	2.6
13	500	4,000	1.3	4.3	5.6	145	70	11.5	40.0	1.66	46.9	54.8	17.5	26	5.2
15	510	4,000	1.94	3.66	5.6	145	70	10.0	42.5	5.94	42.9	66.08	18.6	24	1.7
16	510	4,000	1.94	3.66	5.6	145	70	11.5	38.0	4.95	40.96	52.08	20.0	23	3.05
14	510	4,000	1.94	3.66	5.6	135	50	11.5	48.45	16.25	63.7	119.5	19.8	53	4.15
17	500	4,000	1.25	4.2	5.45	140	70	11.5	49.05	0.88	62.13	82.28	19.4	36	3.52
18	500	4,000	1.96	3.64	5.60	140	70	11.5	51.15	1.56	54.58	71.66	19.9	36	3.3
19	500	4,000	2.20	4.3	6.5	140	70	11.5	48.2	0.815	50.76	77.38	17.1	9	1.12

TABLE III—GREEN BALSAM FIR

No. Cook	Wt. of Charge Bone-dry	Vol. of Liquor	Analysis of Liquor: Combined	Analysis of Liquor: Free SO_2	Analysis of Liquor: Total	Temperature	Pressure Lb. Per Sq. In.	Time	Yield Bone-dry	Screenings Dry	Strength Mullen Test: Unbeaten	Strength Mullen Test: Beaten	Bleaching: Max. Bleach Used	Bleaching: Color of Bleached Sheet Pts. Black	Aver. Loss
	Gr.	Ccs.	%	%	%	°C.		Hrs.	%	%	Percentage Points Per Lb.		%		%
22	496	4,000	1.20	4.45	5.65	145	70	10	45.9	3.9	60.8	75.2	20	85	7.1
24	498	4,000	1.20	4.32	5.52	140	70	11.5	49.75	3.24	60.0	65.1	20.1	65	3.8
20	498	4,000	1.30	4.35	5.65	135	70	10.0	50.9	2.3	74.6	85.9	20.0	119	3.43
25	498	4,000	1.30	4.35	5.65	145	70	11.5	47.5	2.01	53.0	68.4	20.0	54	2.75

The product from this cook was evidently somewhat undercooked as shown by the high percentage of screenings and the high bleach-consumption. The very high strength obtained, together with the yield, would seem to indicate, however, that the cook was made under approximately optimum conditions.

From the foregoing it seemed probable that a cooking temperature of 140 degrees C. with 70-pound pressure would give results closely approaching those required. In the last three cooks, these conditions of temperature and pressure were applied and an acid of different strength was used in each case.

From cook No. 17, using a normal acid, results were obtained which were considered satisfactory for sulphite for news print. Difficulty in bleaching this product would lower its value for finer papers.

A slightly higher yield, of a more undercooked pulp, was obtained by using an acid of the same total strength but containing a higher ratio of combined to free SO_2 (cook No. 18).

A good yield of easily bleached, strong pulp, which could be used to advantage in making fine papers, was obtained by increasing the percentage of combined SO_2 and so raising the total strength of the acid. (Cook No. 19.)

The conclusion is drawn from the results of these experiments, that in cooking fire-killed wood it is advisable to maintain medium temperatures and to use a fairly long cooking period.

A good strong pulp, difficult to bleach, can be produced by following this procedure and using a normal acid.

When the percentage of combined SO_2 is raised and the total strength of the acid kept normal an undercooked pulp is produced.

When the total strength of the acid is increased by raising the percentage of combined SO_2 a good yield of high-grade pulp is obtained which has good strength and easy bleaching qualities.

Green Balsam Fir

The work on spruce having shown the desirability of eliminating certain conditions in the cooking, the number of cooks on green balsam fir was reduced.

In cooks 22 and 24 an ordinary acid was used and the results show the effect of different temperatures and cooking times on the quality of the product. Cooking for 10 hours at 145 degrees C. with such an acid (cook No. 22) gave a fair yield of strong pulp, very difficult to bleach and showing a high loss on bleaching.

When a lower temperature, 140 degrees C., was maintained for a longer cooking period, 11.5 hours, a better yield was obtained.

If the temperature of the cook was lowered again to 135 degrees C., and the time of cooking to 10 hours, using a very similar acid, a coarse undercooked pulp was obtained, impossible to bleach.

When the cooking period was increased again to 11.5 hours and the temperature to 145 degrees C., the same acid being used, a good yield of well-cooked pulp was obtained, which, though difficult to bleach, had a very good color.

The work on green balsam fir seemed to show that a 10-hour cooking period was too short to give satisfactory results with this material. Cooking at temperatures of 135 degrees C. and 140 degrees C. also resulted in somewhat harsh and undercooked pulps, but an 11.5-hour cook at 145 degrees C. yielded a very acceptable product.

Fire-Killed Balsam Fir

The results obtained on the green material indicated that a 10-hour cook would not yield satisfactory results, so that for the three cooks carried out on the fire-killed wood a cooking period of 11.5 hours was adopted. The strength of the acid used was kept constant.

Cook No. 26 carried out at 135 degrees C. gave a very good yield of a strong pulp. This pulp was of good original color, but it was found impossible to bleach it white.

At 140 degrees C. both the yield and the strength of the product were noticeably lower, but an easy bleaching pulp was obtained which gave a very good color, with a low bleaching loss.

At 145 degrees C. the yield was still further decreased and the pulp appeared overcooked.

One point is noticeable in these results, namely, that even with an overcooked pulp a large percentage of bleach is required to bleach the stock white.

Summary

A considerable number of cooking experiments was carried out to determine the pulping qualities of fire-killed spruce and balsam fir. The method adopted was to ascertain suitable cooking conditions for the green material and to adjust these conditions to the cooking of the fire-killed material until a satisfactory product was obtained.

The results indicate, in a broad way, the conditions suitable for cooking this wood and show that a very fair product is obtainable from this, at the present time, neglected raw material.

Effect From Heat of Boiler on Paper

NORTH DIGHTON, Mass., October 27, 1924.

EDITOR PAPER TRADE JOURNAL:

Answering the inquiry of your correspondent "Paper Warehouse" in your issue of October 16, page 36.

The heat from the boiler below will tend to dry out your stock of paper and if partially dried, the stock may curl when removed from the cases. This may or may not be troublesome. Prolonged heating and drying will tend to brittleness and discoloration.

Ventilate and restore normal humidity of the room as far as possible.

MARTIN L. GRIFFIN,
Member TAPPI.

TABLE IV—FIRE-KILLED BALSAM FIR

No. Cook	Wt. of Charge Bone-dry	Vol. of Liquor	Analysis of Liquor: Combined	Analysis of Liquor: Free SO_2	Analysis of Liquor: Total	Temperature	Pressure Lb. Per Sq. In.	Time	Yield Bone-dry	Screenings Dry	Strength Mullen Test: Unbeaten	Strength Mullen Test: Beaten	Bleaching: Max. Bleach Used	Bleaching: Color of Bleached Sheet Pts. Black	Aver. Loss
	Gr.	Ccs.	%	%	%	°C.		Hrs.	%	%	Percentage Points Per Lb.		%		%
26	525	4,000	1.25	4.45	5.70	135	70	11.5	47.6	2.9	91.3	95.8	20	59	7.3
27	525	4,000	1.25	4.45	5.70	140	70	11.5	42.3	0.18	65.5	66.85	15.3	33	4.2
28	525	4,000	1.25	4.45	5.70	145	70	11.5	37.3	0.14	70.6	....	20	40	2.7

WATER IN THE PAPER INDUSTRY*

By M. Aribert

One of the most important factors in the selection of a site for a paper mill is undoubtedly the water supply. It is no exaggeration to say that water is as necessary as fiber in the manufacture of paper; for though it is not a constituent of the finished paper (except, of course, for the natural moisture content of the sheet) it is used at practically every stage in the process of manufacture, either chemically or mechanically. Without water, it would be impossible to work the pulp and to felt the fibers on the paper machine wire, and paper could not be made.

The water supply of a paper mill should be considered from two different angles, both of which are important, for the production of power and for use in the manufacturing processes proper.

We do not intend going into the question of the power furnished by water, whether it be in the form of hydraulic or of steam power; but its quality, or composition, must be studied from the standpoint of boiler feed, and we shall refer to this further on. From the standpoint of paper making processes, considered apart from the generation of power, there are two aspects to the problem: Consumption, and quality and special properties.

Water Consumption in the Manufacture of Pulp and of Paper

The amount of water required in the manufacture of pulp and paper varies within very wide limits, acording to the nature of the raw material and to the grade and quality of the finished product.

Kirchner in his book "Das Papier" gives the following as the quantity of water required for the manufacture of one kilo of pulp or paper:

Groundwood	600 to 1,000 liters
Chemical Pulp	300 to 1,000 liters
Straw Pulp	400 to 600 liters
White Paper	600 to 1,000 liters

Witham gives a consumption of 425 liters for groundwood. Carlson found a consumption of 350 liters in a Swedish groundwood mill. Still another author gives 96 liters as the quantity of water used in the manufacture of one kilo of groundwood.

Too much faith should not be placed in these figures, for the water consumption of groundwood mills can vary according to the lay out of the mill, the quality of the pulp, the operating conditions, re-use of white water, etc. For instance, hot grinding requires much less water than cold grinding, for in the former case the sprays are adjusted so that the temperature at the stone will be about 60°C. Klein carried out tests in which the temperature at the stone was 33°C., and he found a consumption of 125 liters per kilo of pulp.

According to Carlson, the production of one kilo of sulphite requires 300 liters of water. Vogel reports that a mill making about equal quantities of bleached and of unbleached sulphite used 450 liters per kilo. Klein found a consumption of 300 to 350 liters for unbleached and 500 liters for bleached sulphite.

In soda and sulphite mills it is important to keep the water consumption as low as possible so as to reduce the consumption of steam by the evaporators in the recovery plant. The average water consumption in soda and sulphate mills, according to Carlson, is about 240 liters per kilo of pulp; but in some mills it is as low as 90 to 150 liters.

Straw paper and strawboard mills use from 300 to 350 liters per kilo; and this could be reduced quite appreciably by purifying and re-using the back water from the paper machine.

The amount of water used by paper mills will vary according to the nature and thickness of the paper, and especially according to the quantity of water from the save-alls which is used over again. The highest water consumption is found in rag paper mills, where cleanliness is of the utmost importance, and the consumption is relatively high at every stage:

864 liters for boiling and washing in the washing engine.
376 liters for bleaching,
72 liters for beating,
576 liters on the paper machine,
72 liters for sizing.

making a grand total of 1,960 liters per kilo of paper.

The lowest consumption is to be found in newsprint mills, where it is only about 60 to 100 liters (exclusive of the water required in the manufacture of the sulphite and of the groundwood, of course—Translator).

In the manufacture of paper from pulps which are bleached at the paper mill, the water consumption is somewhat higher, and varies according to the degree of bleaching.

We might remark incidentally that the loss of fibers in the waste waters increases concurrently with the water consumption. In an article published in the January, 1910 number of *Teknisk. Tidskrift f. Kemi och Bergsvetenschap* Carlson found the following average fiber losses, calculated as percentage of the output, as a result of investigations carried out in a number of Swedish mills:

Groundwood	5 to 6
Sulphate pulp	2.2
Unbleached sulphite	3
Bleached Sulphite	4
Newsprint	11.3 to 14.8
Parchment paper	3.7 to 6.4
Rag paper	2

Properties of the Water

The very important part played by water in the manufacturing process makes it imperative that it should come up to a certain standard, which can vary to a certain extent according to the nature of the paper.

The first requirement is purity, which does not mean simply that clear bright water is suitable for the manufacture of all grades of paper. The suitability of the water depends on the nature and amount of the various substances which it holds in solution and in suspension; and water which is quite suitable for paper making may become totally unfit for this purpose on account of the introduction, in one way or another, of certain substances.

For, cellulose fibers, owing to their colloidal character, have marked affinity for crystalloids, and the substances which are present in the water will be fixed by the fibers. This attraction is particularly marked in the case of iron, which was studied by Clayton Beadle by putting pure cellulose in contact with water containing a known amount of iron. Determination of the iron in the thoroughly washed fibers showed the retention of over one-third of the iron. It is naturally to be expected that other substances besides iron will behave similarly, and as the fibers come in contact with a very large volume of water during the various manufacturing processes it is readily seen that they can fix a by no means negligible amount of the solids present in the water.

The substances which are thus attracted and held by the cellulose affect its properties to a considerable extent, especially the flexibility, elasticity, felting power and absorbency of the fibers; and moreover they can have a very harmful effect on certain operations, such as sizing and coloring.

Use of River, Spring and Well Water

For a long time paper mills used only well water or water from mountain streams. But with the development of the industry these sources of supply became insufficient, and river water had to be used.

As a rule spring water is bright, clear and pure during fine

*Translated from the Special Paper Making Number of *Science et Industrie* by A. Papineau-Couture.

weather, but it quickly becomes dirty and muddy during rainy weather or in the spring. Under these circumstances the paper mill is obliged to stop the manufacture of its usual grades and to turn out nothing but the coarser grades.

The purity of river water is subject to the same distributing factors as spring water; and in addition it may be contaminated by all sorts of industrial wastes from cities and factories situated on its banks, the degree of contamination being inversely proportional to the stream flow. In certain streams there is such a wide variation in the flow at high water and at low water that storage dams are constructed to impound the water in the spring and make it available during the summer and fall when there would normally be but little flow. In order to maintain the purity of the stored water, the bottom of the storage should not be too calcareous or marshy.

Many mills are forced to purify their water. The impurities which it contains may be classified under three headings:

1. Heavy suspended particles, dead leaves, etc.;
2. Substances held in colloidal solution;
3. Dissolved substances.

Purification may be carried out with a view to eliminating one or more of the above classes of substances.

The first does not offer any difficulties, as these particles readily settle out of the water, and moreover they can be held back by means of filters. The apparatuses used for filtering water fall into two classes: Sand filters and mechanical filters. A description of these would take us too far afield, and we shall merely indicate their relative advantages and drawbacks. The quality of the water delivered by sand filters is very irregular. At first the degree of purification is unsatisfactory, but the flow is very high; then, as the pores begin to fill up with the suspended matter of the water, filtration improves, but the flow falls off gradually, until a point is reached where the filter must be cleaned. Moreover, as filtration is slow, the filtering area must be very large; and it is generally considered that one square meter of filtering surface is required per cubic meter per day. Mechanical filters, on the other hand, are much more compact, and have a flow of 150 to 200 cubic meters per day, per square meter of filtering area. Filtration is much more uniform, the filters do not require much attention, and they are easily and quickly cleaned. Moreover, they generally are designed so as to allow of adding the chemicals required for the removal of other impurities.

Colloidal matter is precipitated or coagulated by addition of alum or of sulphate of alumina (paper makers' alum) and sometimes when there is a considerable amount of humic substances potassium permanganate is also added. After this treatment, the water is filtered to remove the precipitated impurities.

The softening of water is the treatment to which it is subjected to decrease both the temporary and the permanent hardness. It usually consists in treating the water with milk of lime to eliminate the bicarbonate of lime and of magnesia, or with soda ash solution to reduce the permanent hardness by precipitating the alkaline-earth sulphates in the form of carbonates, or with both lime and soda ash. This is especially important in the case of boiler feed water to prevent scaling of the inside of the boiler. The disastrous effects of the scale which is formed by using hard water can readily be understood when it is said that a scale 1mm. thick causes an increase of 15 per cent in the amount of fuel required for generating steam.

It is also at times necessary to soften the water used in the manufacture of paper so as to avoid trouble at certain stages, more particularly during sizing.

Hardness of Water

All natural water contains a certain amount of dissolved solids, chiefly carbonates sulphates and chlorides of calcium and magnesium. When it contains a relatively large amount of these substances, the water is called "hard", and when the amount present is small the water is "soft". The quality of the water depends on the quantity and nature of these substances.

The hardness of the water, the property imparted to it by the presence of salts of the alkaline earths (calcium and magnesium), is of great industrial importance, and is usually expressed in units called "degrees of hardness". There are various methods of determining the degree of hardness of a water, which are all based on the use of a standard solution of Marseille (Castile) soap, which gives a foam when shaken with pure water, but not with hard water until the whole of the lime and magnesia have been precipitated as insoluble soaps. The units of hardness are purely conventional, and different ones are used in different countries. One French degree is equivalent to 1 part of calcium carbonate ($CaCO_3$) per 100,000 parts of water; one German degree is equivalent to 1 part of lime (CaO) per 100,000; and one English degree corresponds to 1 part of calcium carbonate ($CaCO_3$) per 70,000 parts of water. One French degree = 0.56 German degree = 0.70 English degree.

There are three kinds of hardness: Total, permanent and temporary hardness. Total hardness is that of the unboiled water. Permanent hardness is that which the water has retained after boiling, and is due to the presence of sulphates and chlorides of calcium and magnesium. Temporary is the difference between total and permanent hardness and is due to the carbonates of the alkaline earths, held in solution by excess of carbonic acid. Knowledge of the total, permanent and temporary hardness of a water gives some idea of the dissolved substances which it contains; but their more exact determination requires a chemical analysis, which is carried out by methods described in treatises on analytical chemistry.

Effect of the Prnicipal Dissolved Salts. Calcium Salts

The lime salts present in water have no appreciable effect in the manufacture of pulp, but they cause trouble in the paper mill.

Calcium carbonate is almost insoluble in pure water, one part dissolving in 10,600 parts by weight of cold water and 8,800 parts of boiling water. Under these conditions calcium carbonate cannot do much harm. But when the water contains free carbonic acid the solubility of calcium carbonate is increased to a very considerable degree. Calcium sulphate (gypsum) is more dangerous, for its solubility is much greater, one part dissolving in about 400 parts of water.

The effects of the lime salts in the water is felt especially during sizing. This is generally carried out with rosin, in the form of an emulsion of free rosin and of sodium resinate in water, and with alum or sulphate of alumina. Lime salts react with both the rosin and the alum. Calcium bicarbonate, for instance, reacts with alum giving calcium sulphate and alumina and preventing it from reacting with the rosin size, so that trouble is experienced with the sizing and the consumption of alum is increased. The lime salt also reacts with the size, precipitating calcium resinate in the form of large lumps, which interfere with the sizing. Moreover, calcareous water usually has an alkaline reaction, necessitating a still further increase in the consumption of alum since the precipitation of the size must be carried out in a slightly acid medium. The same trouble is experienced when the water contains gypsum. As a matter of fact the latter is more troublesome than the carbonate, as it is not so easily removed, and nothing short of a softening treatment with soda ash will make the water satisfactory for sizing.

Hard, alkaline water causes trouble with coloring as well as with sizing. It neutralizes the iron or alumina mordants by partial precipitation, thereby reducing the tinctorial power of basic aniline dyes and of all the vegetable colors except logwood. Also, in many cases it causes trouble in preparing the solution of the dye, but this can generally be overcome by adding a little acetic acid.

Magnesium Salts

The action of magnesium carbonate and of magnesium sulphate is practically the same as that of the corresponding calcium salts.

Magnesium chloride has a disastrous effect on the fastness of

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sizing. In one instance a well sized paper was found to be partially unsized after three or four weeks, due to the action of magnesium chloride.

The presence of magnesium chloride is particularly objectionable in boiler feed water, for at the high temperature prevailing inside the boiler this salt is hydrolyzed with liberation of free hydrochloric acid.

The influence of iron salts in the manufacture of pulp and paper is considerable. They impart a greyish tinge to unbleached pulp and to paper, and a yellowish tinge to bleached pulp, and consequently are detrimental to the color of white paper. They are particularly objectionable in the manufacture of photographic papers. They react with the sensitized coating, decomposing it and giving rise to black specks in printing out papers and to light-colored stains with a dark nucleus in bromide papers. Bakeland has proved that these stains are due to electrolytic reactions. Dissolved salts which are fixed by the fibers are worse than metallic particles, for they give a uniform greyish tinge which affects the whole image, whereas metallic particles cause specks here and there.

Another trouble which may be caused by iron salts is the yellowing of photographic paper due to the possible combination of the rosin with the iron.

Water used in the manufacture of white paper and of photographic paper should not contain more than 0.1 milligram of iron per liter, and even this small amount can cause trouble. If the water contains from 0.2 to 1.5 milligrams per liter, the iron content can be reduced by aerating and then filtering off the ferric compound which has been precipitated.

Organic matter in water may come from a wide variety of sources. The amount present is generally small, but at certain seasons, particularly in the spring, it increases considerably, owing to the humus produced by decomposition of vegetable material during the winter, which is carried off by the melting snow. This humus gives the water a yellowish, opalescent color, which naturally affects adversely the whiteness of the pulp or of the paper. So that if this occurs when the mill is running on high grade paper, the water must be treated with permanganate to oxidise the organic matter and destroy the yellow color.

Organic matter acts as an excellent vehicle for oxygen, and therefore has a disastrous effect on metallic piping and fittings.

Suspended organic matter has a twofold detrimental action on sizing: on the one hand it attaches itself to the fiber, and on the other it causes the agglomeration of the rosin into lumps which do more harm than good in sizing.

Finally, it is accompanied by numerous micro-organisms which, whenever favorable conditions develop, thrive on the gelatin or glue which may have been used either for tub sizing or for coating, thereby deteriorating the sizing and at the same time staining the paper owing to the secretions of the bacteria.

In closing, we wish to mention that numerous factors can affect the quantity of solids dissolved in the water. It is therefore a wise precaution to carefully watch the composition of the water supply by frequent analyses, even weekly analyses as is being done at a large English mill, and to draw a curve representing the variations over a period of one or more years. This would permit of meeting seasonal changes in the composition of the water, either by adequate purification or by suitable variation in the quality and grades of paper manufactured.

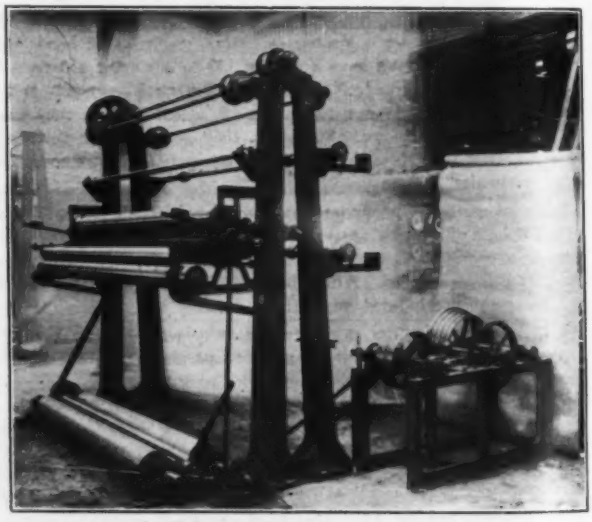
WRAPPING MACHINE FOR PAPER ROLLS

Packing of paper rolls, especially newspaper rolls, is at present almost exclusively performed in the following manner: the roll is at first wound with wrapping paper, and some boards are placed round the rolls lengthways and attached with hoop-iron. Sometimes the end of the roll are also protected by wooden heads. By experience however, this way of packing offers no good protection. Every paper mill and every consumer of roll paper know that the rolls are damaged during the transport and that the result is a certain amount of waste. Besides, this packing is exceedingly expensive, as to material as well as to costs of making.

In order to reduce the wrapping cost to a certain extent some mills have recourse to packing in wrapping paper made only for this purpose. This paper is wound round the roll by hand. However this handwrapping is expensive, partly on account of high costs of making, partly because the wrapping paper used must be of particularly good quality. Another inconvenience is that the different layers cannot be pressed so intimately together, that their united strength can be made use of.

Not until W. Ljungström, head workman at the paper mill of Matfors, Sweden, had constructed his wrapping machine, was it possible to reduce the wrapping costs considerably. This reduction is due to the advantage of allowing the use of cheap wrapping paper and with the very best effect. The machine, which has a capacity of 100 to 180 tons by 8 hours, is simple with regard to its principles and easily managed and requires only one man.

The machine is chiefly characterized by a couple of horizontal rollers lowly placed, upon which the paper roll is put. One of these rollers is driven and puts the paper roll into rotary motion. Upon the stand of the machine a number of journals are placed, upon which the axles with the wrapping paper rolls are laid. In this way wrapping with paper covering the whole width of the roll, as well as pasted strips strengthening the edge is made possible. In order to make the packing particularly hard and effective by using the smallest number of layers of wrapping paper, the machine is provided with arrangement of pasting the latter. Besides the



machine is supplied with brakes and several particular arrangements for stopping the motion automatically, as soon as the desired number of layers of wrapping paper is wound on. The machine can also be arranged for automatic stopping of the pasting apparatus as well as of the pushing forward of the wrapping paper.

This packing has been used since July, 1922, by Skönvik Limited, for inland and foreign markets (England, U. S. A., etc.) and has met with such a favorable reception, that the firm has now agreed with their customers to pack all paper by the Ljungström's method during 1924. For packing for inland market 2 or 3, for foreign market 4 or 5 layers of wrapping paper and the equal number of strips are required.

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

CLARENCE J. WEST, CHAIRMAN

Alkaline Process

Indirect Cooking with External Circulation. Torsten Samson, *Svensk Pappers.-Tid.* No. 4 (Feb. 29, 1924). Indirect heating by means of steam coils is employed, which causes the circulation in the digesters to follow certain lines, and maintains a more uniform temperature of the liquor than is the case in digesters heated by injection of steam. The pulp produced is consequently more even and of greater strength while the output is also greater with less expenditure of raw material. For sulphate and soda pulp steam coils cannot be used, since these would occupy too much space in the digester to allow sufficiently quick heating. A still better method of equalizing temperatures in the digesters is to circulate the liquor by means of a pump placed outside the digester. The liquid passes through a screen in the digester to a centrifugal pump, which forces the liquor through a preheater to a suitable place in the digester. The heater can be replaced by an arrangement for injecting steam into the circulating pipe, whereby as good a circulation is obtained with direct heating as with the indirect method. Preferably as much lye as possible is circulated. In a sulphate or soda pulp digester of 30 cu. m. capacity circulating from 110 to 330 gal. a minute, it was found that the liquor entered the digester at a temperature which was 63° F. higher than the temperature of the lye flowing out, while the difference in temperature by the direct method amounted to only one-third of this figure. At the same time the steam temperature in the heater was lower. Graphs are provided showing the results of tests of the heating of a sulphite pulp digester with high circulation. In the device of Schauffelberger the liquor is removed from the digester through a screen placed just below the surface of the liquor. It then runs into the pump and to a heater in the digester, whereby the bulk of the lye enters the digester at the bottom, and only a smaller portion enters at the top. The circulation does not cause the contents of the digester to be pressed together, but is distributed throughout the mass of chips. External circulation is used in many Scandinavian mills for cooking sulphate wood pulp, and in Scotland for boiling straw and esparto. The quality of the pulp is improved by the process and it is said that the liquor is not diluted; steam consumption is reduced, and it is not necessary to carry off excess acid from sulphite pulp digesters.—P. B.

Removal of Bad-Smelling Gases from Waste Gases of Soda Pulp Mills. Carl G. Schwalbe. Ger. pat. 389,206; addition to 319,524. *Papierfabr.* 22, No. 73 (Feb. 24, 1924). Instead of using sawdust, and other substances of like nature, straw or straw refuse may be employed among other things for the removal of bad-smelling gases evolved in the manufacture of pulps employing alkaline processes.—J. L. P.

Sulphate Pulp Mills for Russia. K. Breitveit. *Bum. Prom.* 2, No. 5, 507-513 (Sept.-Oct., 1924). The position is taken that Russian conditions are more suitable for the sulphate process as against the sulphite process. The causes for the development of the pulp and paper industry in Finland are considered. A comparison between Finnish and Russian conditions shows much similarity.—M. L. C.

Recovering Soda and Active Carbon from Black Liquor. M. J. Creighton, assignor to Darco Corp. U. S. pat. 1,483,160, Feb. 12, 1924. Evaporated residues from soda black liquor are incinerated and the incinerated material is reheated to a temperature of about 600° C. or above in the presence of steam. Soda is separated by washing from the activated carbon produced.—A. P.-C.

Manufacturing Turpentine as a By-Product in Sulphate Pulp Making Process. O. W. A. Rodowski. *Paper Trade J.* 78, No. 14, 75-76 (Apr. 3, 1924). A discussion of the advisability of recovering turpentine as a by-product of sulphate pulp manufacture, showing the difficulties and advantages of this procedure.—A. P.-C.

Recovering Products from Soda Black Liquor. Vereinigte Ganzstofffabriken A. G. Eng. pat. 204,322, Sept. 17, 1923. A precipitate obtained by purifying soda black liquor by adding a heavy metal compound, such as copper sulphate, is treated to recover the valuable ingredients such as soda and copper by heating in an autoclave, e.g., for 3 hr. at a pressure of 3 atmospheres. The products are a brown liquor and cuprous oxide or metallic copper.—A. P.-C.

Treatment of Black Liquor. L. Bradley and E. P. McKeefe. Can. pat. 236,531, Dec. 25, 1923. Black liquor is atomized into a heated atmosphere containing carbon dioxide or sulphur dioxide, thus concentrating the liquor and precipitating the organic matter and producing a solution of sodium salts, which is causticized to give a concentrated soda solution available for re-use.—A. P.-C.

Treatment of Black Liquor. L. Bradley and E. P. McKeefe. Can. pat. 236,528, Dec. 25, 1923. An ammonium compound, the acid radical of which forms a sodium salt causticizable with lime, is added to soda black liquor in sufficient quantity to precipitate most of the precipitatable organic matter from the liquor. The liberated ammonia is driven off, the acetic acid and other volatile organic acids are set free, the organic matter is separated and the liquor is causticized for further use.—A. P.-C.

Treatment of Soda Black Liquors. L. Bradley and E. P. McKeefe. Can. pat. 236,530, Dec. 25, 1923. The liquor is treated with niter cake to remove the organic matter and the solution is treated to produce a solution of caustic soda available for re-use.—A. P.-C.

Continuous Causticizing Plant of Penobscot Chemical Fibre Co., Great Works, Me. W. D. Mount. *Pulp & Paper* 22, 407-408 (Apr. 10, 1924); *Paper Trade J.* 78, No. 15, 190-191 (Apr. 10, 1924); *Paper Ind.* 6, 183-189 (Apr., 1924); *Paper* 33, No. 26, 144 (Apr. 17, 1924). A description of the plant with an outline of the merits of the system.—A. P.-C.

Methods in Use for Disposal of Lime Sludge in Sulphate Pulp Mills. G. K. Spence. *Paper Trade J.* 78, No. 15, 182-183 (Apr. 10, 1924); *Paper Ind.* 6, 179-183 (Apr., 1924); *Paper* 33, No. 26, 108, 110 (Apr. 17, 1924). Brief description of the preparation of agricultural lime and of whiting, and of the burning of the sludge for re-use in causticizing, with estimated installation cost and daily operating cost in each case.—A. P.-C.

Chlorine Process

Continuous Chlorination of Pulp by Means of Nascent Chlorine. A. R. de Vains. *Papeterie* 46, 349 (Apr. 25, 1924). Polemical against Raymond Fournier.—A. P.-C.

Chlorine Pulp: Chlorine Gas and Chlorine Water Processes. Umberto Pomilio. *Chimie et Indus.* 11, 423-433 (March, 1924). Polemical against de Perdiguier.—A. P.-C.

Chlorination of Cellulosic Materials. A. R. de Vains. Eng. pat. 208,551, Dec. 18, 1922. Non-cellulose compounds are eliminated from raw cellulose or pulp by treatment with chlorine in a contra-flow process continuously operated. In the operation conducted under pressure, concentrated pulp is introduced into a chamber having stirrers, chlorine gas is admitted, the admission of gas and the discharge of pulp being adjusted by valves to maintain a constant level, a window being provided in the chamber for the purpose. A number of chambers may be arranged in series. In apparatus working at atmospheric pressure the pulp is distributed in a tower filled with

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elements which may be smooth or corrugated cylinders, and chlorine is suitably admitted. The chlorinated pulp passes to reaction towers the dimensions of which are such as to permit the pulp to remain therein ten minutes. The hydrochloric acid produced in the treated pulp is neutralized with lime in one set of towers, and the neutral pulp collected in a second set of towers.—A. P.-C.

Chlorination of Paper Pulp. A. R. de Vains. Can. pat. 237,548, Feb. 5, 1924. In the chlorination of non-cellulose compounds of a ligneous material hydrochloric acid is added to the pulp, which is then mixed with an alkali-metal hypochlorite.—A. P.-C.

Continuous Chlorination by Means of Nascent Chlorine. Raymond Fourier. *Papeterie* 46, 257-258 (March, 25, 1924). A criticism of Fr. pat. 556,183 (same as Can. pat. 237,548—see preceding abstract), on the ground that it practically claims the use of chlorine water, which is well known and has been proposed long ago, and that de Vains is inconsistent in adding hydrochloric acid which he has always claimed to be more detrimental to the pulp than chlorine or oxygen.—A. P.-C.

Beating

Effects of the Fibers of Grinding Paper Broke in Kollergangs. Z. Levitt and A. Shirochenkov. *Bum. Prom.* (Russian) 11, No. 6 644-647 (Nov.-Dec., 1923). Observations on Hoffman kollergangs grinding paper broke, 20% rag and 80% chemical wood, showed: Grinding with 54.6% water required 3½ hours, took 16.6 kw. hrs. and gave shorter and more hydrated fibers than when more water was used. With 66.2% water the defibering was complete in 1¼ hrs. and took 8.7 kw. hrs.; with 74.6% water 1¼ hrs. were required, 8.4 kw. hrs. were consumed and the fibers differed little from the original fibers. Micrographs of the fibers and "freeness" curves are given.—M.L.C.

Acceleration of Mucilage Formation in the Beater by Chemical Means and by Adding Mucilage Formers. C. G. Schwalbe. *Papierfabr.* 22, No. 77 (Mar. 2, 1924). Supplementary to an article of similar title in *Papierfabr.* 22, No. 1 (1924). Recent experiments have shown that to increase the rate of slowness formation in the beater it is only necessary to add 1 to 3% (based on the weight of the stock) of the mucilage former at the beginning of the beating operation. In an investigation with 7 kg. of bleached sulphite pulp and 200 l. of water contained in a beater, the slowness increased to 43 in 95 minutes by the Schopper-Riegler tester. It tested 25 in 40 minutes, and 30 in 77 minutes. When the mucilage formers were present, however, the slowness reached 30 in 32 minutes, and increased to 44 in 77 minutes. The addition of the chemical preparation results in a saving of both time and power in the beating process.—J.L.P.

Acceleration of Mucilage Formation in the Beater. Ernst. Fues. *Papierfabr.* 22, No. 106 (Mar. 16, 1924). Polemic against C. G. Schwalbe *Papierfabr.* 22, No. 1-5 (Jan. 6, 1924). Reference is made to a Ger. pat. (193,909, Oct. 3, 1906) in which hydrocellulose and oxycellulose are added to paper stock, thereby altering the nature of the resulting sheet of paper.—J.L.P.

Simplicity in Research. (The Green "Beater Drag"). Arthur B. Green. *Paper* 33, No. 25, 6-10 (Apr. 10, 1924). A discussion of the necessity of proper and consistent beater control, of the factors to consider in effecting such control, and of the development of the Green "beater drag" ascribing its success and its reception by beatermen to simplicity in research.—A. P.-C.

Miscellaneous

Removing Electric Charge From Paper Rolls in Making Paper Bags. C. W. Hartmann. Eng. pat. 195,386. The electricity with which paper webs become charged in bag making and other processes causes the paper to adhere to guiding members and a resistance is set up. Attempts have been made to remove this by moistening the paper. This improved method consists in spraying the paper with water finely atomized by air pressure so that the water impinges on to the paper surface.—A. P.-C.

Acidity and Paper Making. Jessie E. Minor. *Paper* 33, No. 24, 6-8 (April 3, 1924). Review and discussion of our present knowledge of acidity conditions found at the various stages of paper making.—A. P.-C.

Paper Making Opportunities in the South. Chas. A. McKeand. *Paper Trade J.* 78, No. 15, 203,205 (April 10, 1924); *Paper* 33, No. 26, 38 (April 17, 1924). A discussion of the availability of raw materials, power, markets, labor and climate.—A. P.-C.

Human Factor in Paper Manufacture. E. J. McDonnell. *Paper Trade J.* 78, No. 18, 42, 44, 66 (May 1, 1924); *Paper* 34, No. 1, 5-7 (April 24, 1924). A plea for the proper training and development of competent and skilled all-round paper makers.—A. P.-C.

Testing and Research Laboratory of the French School of Paper Making. L. Barbillion. *Recherches et Inventions* No. 11, 439-443 (March 15, 1924). Brief description of the laboratory and of the work which it is equipped to handle.—A. P.-C.

Paper Manufacture As An Integral Industry. Wm. G. MacNaughton. *Paper Trade J.* 78, No. 15, 219-231 (April 10, 1924). A list of operations and kinds of equipment, machinery and supplies called for by pulp and paper manufacturers, indicating the breadth of the industry and showing its direct contacts with many other apparently little related industries and lines of business. The manufacture of paper is classified by departments.—A. P.-C.

Specifications in Purchases of Paper. E. O. Reed and Herman Davidson. *Pulp & Paper* 22, 516 (May 15, 1924). Brief discussion of their advantages.—A. P.-C.

Southern Timber Resources in Relation to Paper Making. Austin Carey. *Paper Trade J.* 78, No. 19, 57-60 (May 8, 1924). A discussion of the suitability of the southern United States for the production of pulp wood.—A. P.-C.

Kraft Paper in the South. R. H. Stevens. *Paper* 34, No. 4, 133-136 (May 15, 1924). Outline of the development of the kraft paper and sulphate pulp industry in the southern States.—A. P.-C.

Russian Paper Industry. I. Unovitsh. *Bum. Prom.* 3, No. 2, 58-67 (Feb., 1924). Statistics of the Russian paper industry for the last quarter of 1923.—M. L. C.

Abstracts of the Pulp and Paper Literature. Willy Grunewald. *Zellstoff U. Papier* 4, 38-41 (March, 1924). The articles and patents are for the most part in German journals. The period covered is October to December, 1923.—J. L. P.

Bacteria That Dissolve Iron. Wm. H. Gesell. *Paper* 33, No. 23, 5-6 (March 27, 1924). Sudden appearance of rust or of brown slime in beaters or on paper machines is practically always due to the intensive development of iron bacteria (especially *Leptothrix ochracea* and *Crenothrix polyspora*), and seldom or never to pipe corrosion or electrolytic reactions. The reactions involved in the assimilation of iron are explained. Addition of bicarbonates of calcium, magnesium or copper, making the water alkaline, and removing organic matter, are effective in preventing this trouble.—A. P.-C.

Destruction of Paper By Ink. W. Herzberg. *Wochbl. Papierfabr.* 55, 335-337 (Feb. 16, 1924); *Papierfabr.* 22, 81-83 (March 2, 1924). Six papers, of different composition, were soaked in three commercial iron gallate inks, and dried in a vacuum to effect penetration. Blank tests were carried out with distilled water. The sheets were stored in a record cabinet and tested after 4, and after 12 months. The tests were made at 65% relative humidity and 18° C. The distilled water treatment showed no appreciable change in the properties of the sheet as given by the tearing length test, the stretch, and the folding endurance. With the inks, the tearing length was diminished the least, the per cent stretch considerably, and the folding endurance to a marked degree. Averaging the results for the 3 inks and the 6 papers at the end of 12 months, the first test decreased 15%, the second 50%, and the third 90% to 95%, as compared with the original sheets. It was demonstrated that iron gallate inks exert a distinct destructive action on paper. The testing of other inks is in progress.—J. L. P.

Special Papers

Process of Watermarking Paper. Papet. Vincent Montgolfier. Fr. pat. 565,827. *Papeterie* 46, 217 (March 10, 1924). The watermark is engraved into a copper roll by a suitable etching process, and the paper as it comes from the last press is pressed against the etched roll before going to the driers.—A. P.-C.

Method of Watermarking Paper. W. M. Temple. U. S. pat. 1,479,337, Jan. 1, 1924. Manufactured paper is passed through a press and impressed with a mark clearly visible by both transmitted and reflected light by means of a marking fluid composed of 20 parts of stearic acid, 38 parts of carbon tetrachloride, 1 part of glycerine and 1 part of colorless vaseline.—A. P.-C.

Linen Surfaced Paper. S. Milne. Eng. pat. 212,765. The paper is first passed between two rollers, one of which is plain and hard and the other of resilient material, such as vulcanite, covered with linen or whatever fabric impression is to be imparted. The paper is afterwards passed between rollers, each of which is covered with fabric. The preliminary treatment ensures a well defined even impression and a good appearance of the paper when held to the light. If desired intaglio markings can be applied during the treatment.—A. P.-C.

Paper Having the Appearance of Hand Made Paper. J. H. Armstrong, assignor to American Writing Paper Co. U. S. pat. 1,470,675, Oct. 16, 1923. The paper is made on a cylinder machine with regularly spaced heavy wires on top of the wire screen which indent the web of pulp as it is formed. A pair of breaker rolls receive the paper from the press rolls and pull it apart into individual sheets, which are then dried and surface sized.—A. P.-C.

Flatness of Machine-Glazed Paper. G. Schumann. *Wochbl. Papierfabr.* 55, 457-458 (March 1, 1924). Stock treatment and composition play a great role in determining the flatness of the finished sheet. Uneven drying on the paper machine was found to influence the sheet less than was supposed.—J. L. P.

Production of Brown Tissue Papers. Anon. *Papierfabr.* 22, Tech.-Wiss. Teil 65-69 (Feb. 24, 1924). The most economical and best wood to employ for brown tissue papers is pine, using either the cooking or the steaming treatments. The author prefers the former method, and states that the most suitable pressure is 4 to 6 atmospheres for about 6 hours. The manufacture of pulp and conversion to tissue paper are described at length. The Biffar mill is recommended for refining the pulp.—J. L. P.

Parchment and Imitation Parchment. H. Postl. *Papierfabr.* 22, Tech.-Weis. Teil 77-79 (March 2, 1924). The following topics are covered from a historical and general standpoint: true parchment, vegetable parchment, parchment substitutes, and fat-impervious parchment. A brief outline is given of their preparation.—J. L. P.

Gumming Paper Sheets. H. C. Brooks and H. F. Warbey. Eng. pat. 207,333. The sheets to be gummed are withdrawn singly from the bottom of a pile in fanned condition by means of suction devices and delivered to a conveyor. The suction devices have several suckers each pivotally mounted on a rocking arm to allow variation of movement. Rotatable finger members complete the feed so that the gumming operation can be continuous and rapid.—A. P.-C.

Effect of Brown and Blue Print Sensitizing Materials on Physical Properties of Paper. T. D. Jarrell and F. P. Veitch. *Paper Trade J.* 78, No. 17, 45-47 (April 24, 1924). Experiments described show that high quality papers coated with brown print materials now customarily used in the United States deteriorate very rapidly at 65% relative humidity and 70° F., the coated paper kept under these conditions having less than 25% of the folding endurance of the uncoated paper. The wet strength of the coated brown print paper stored at 65% relative humidity and 70° F. is greater than that of the uncoated for at least 16 weeks. Brown print paper should be printed and developed within a week after it is coated. Papers of good quality coated with blue print materials can be kept at least four months at 65% relative humidity and 70° F., without deterioration of the paper. Long washing after developing (up to 15 min.) or machine drying for one-half minute at from 180° to 270° F., did not affect the brown and blue print papers examined.—A. P.-C.

Colored Ornamental Paper. G. E. Senseney assignor to the Marvellum Co. U. S. pat. 1,481,567, Jan. 22, 1924. Paper is crumpled or creased to produce irregular lines of increased permeability, partially smoothed by ironing, and then brushed or wiped with a coloring liquid which produces a variegated effect due to unequal penetration.—A. P.-C.

Transparent Paper. John Dickinson & Co., Ltd. Eng. pat. 208,410. In order to increase transparency of portions of a paper blank pressure is applied to the areas to be made transparent so as to consolidate the fibers. The medium for rendering these parts transparent is then applied. Owing to enhanced receptivity less of the medium is required and a greater transparency will be secured, and the time required for drying will be shortened.—A. P.-C.

Safety Paper and Process of Making Same. W. P. Thompson from Crane & Co. Eng. pat. 209,919, Dec. 12, 1922. Safety paper for checks, notes, bonds, etc., is made by incorporating with the paper at any suitable stage in its manufacture an amine of the benzidine group, such as benzidine, orthotolidine, orthodianisidine, or a substitution product thereof. Insoluble salts, such as, for example, benzidine sulphate, are preferably used since these are less affected by long exposure to light than are the more soluble derivatives. The amino compound may be incorporated with the pulp before the formation of the sheet, in which case 5% of, for example, a benzidine salt, on the weight of the pulp, is a suitable quantity, or it may be applied to the finished sheet either in the form of a powder, or in suspension or in solution in a suitable liquid, or it may be pressed into a stick with the aid of a binding material, such as starch, and rubbed over the surface of the paper. If desired, it may be incorporated with the ink that is used to mark the paper. In contact with ink eradicators, which usually contain oxidizing agents, the amino compounds described above give a brownish coloration, which is not affected by treatment with acids, alkalis, reducing agents, or other chemicals.—A. P.-C.

Abrasive Sheet Material. A. E. White from National Lead Co. Eng. pat. 209,872, Nov. 1, 1922. Abrasive sheet material, such as sandpaper, emery paper, etc., which is waterproof, durable, and flexible, and of improved cutting quality, is made by coating a sheet of cellulose base, previously soaked in a non-drying or semi-drying oil, such as cottonseed oil, with a grit-holding vehicle containing a drying oil (which must be miscible with the non-drying oil), and then baking the coated sheet at a suitable temperature (above 60° C.) until the product has the desired character. The duration and temperature of baking may be varied according to the softness required of the product.—A. P.-C.

Waterproof Abrasive Paper. H. Behr & Co., Inc., and F. J. Crupi. Eng. pat. 211,203, Nov. 13, 1922. Paper is coated successively, on the back, with solutions of glue and formaldehyde, the resulting dry layer forming a waterproof protection for the backing of the abrasive paper, and the face side is then coated with a layer of glue on which is subsequently sprinkled the abrasive material. The abrasive face is then sized with a water-resisting cement containing 250 lb. of rosin, 75 lb. of 87% phenol, 60 lb. of glue, 100 lb. of water, 100 lb. of 56% acetic acid, and 5 lb. of benzine or benzene, and immediately sprayed with an aqueous solution of formaldehyde. After drying the paper is sized with a 10% solution of boiled linseed oil in benzine.—A. P.-C.

Making Compound Papers. C. Hanrott. Eng. pat. 209,463, Oct. 4, 1922. Paper and fabric sheets are secured together by means of rubber latex while this is in a moist condition. The latex may be applied to one sheet and a coagulant, e.g., acetic acid, to the other. The process may be used in making paper for photo-

graphic purposes, for the manufacture of envelopes, etc., or in mounting maps, etc., upon cloth, etc.—A. P.-C.

Manufacture of Rubberized Paper. P. Schidrowitz. Eng. pat. 210,526, Nov. 1, 1922; addition to 193,451. Paper pulp is incorporated with vulcanized latex prepared as described in the chief patent, and vulcanized rubber is deposited on the fibers by evaporating the liquid or by adding a coagulant such as alum or acetic acid to the mixture. For example, a paper composition comprising pulp containing 2.25% of dry fiber and 10% of its weight of rosin size is mixed with a quantity of the vulcanized latex containing 1% of rubber calculated on the weight of dry fiber in the pulp. Sufficient alum is added to precipitate the size and to coagulate the latex, and the pulp is worked up to paper in the usual manner. Higher proportions of the latex can be added if stronger paper is required.—A. P.-C.

Asphalt-Saturated Rag Felt. *Paper Ind.* 6, 336 (May, 1924). Secifications of the U. S. Bureau of Standards for asphalt-saturated rag felt intended for use with asphalt for mineral surfaced roofing, asphalt for unsurfaced built-up roofing, and asphalt for waterproofing and damp-proofing in the construction of built-up roofing and membrane waterproofing, respectively.—A. P.C.

Waterproofing Paper By Use of Rubber Latex. R. Russel and H. Broomfield. Eng. pat. 211,188, Oct. 17, 1922. Paper or similar fibrous material is impregnated with latex in a suitable mangling or beetling machine, and is subsequently treated in a machine of similar type with a hot coagulating liquor, such as dilute acetic acid or alum. If desired, the latex may be previously mixed with agents for subsequent vulcanization and also treated so as to render the proofing "mellow." After coagulation and while the rubber is still plastic, the material is calendered so as to produce a smooth surface and impart suppleness.—A. P.-C.

Reinforced Paper. C. H. Howard. Eng. pat. 209,333, Mar. 13, 1923. In a machine for drawing rovings forward from a source of supply, and forming them into a thin sheet for application to a sheet of paper, rovings are led from cams between feed rolls and crimping rolls over a spreader bar and around rolls to a series of combs extending transversely of the machine. The ends of these combs are engaged by a pair of screws by which they are fed forward at such a speed as to thin out and attenuate the fibers. At the end of the screws the combs are forced down by cams to engage quick-pitch screws by which they are fed back, cams raising them again into engagement with the upper screws. The drawn out filament sheet is applied to a sheet of paper coated with adhesive at a trough, a second paper sheet being applied, and the three layers pressed together by rolls.—A. P.-C.

Making Photographic Papers. E. Arnould, *Pulp & Paper* 22, 422-3 (April 17, 1924); *Paper* 34, No. 4, 137-140 (May 15, 1924). Practical manufacturing hints.—A. P.-C.

Photographic Paper. Hydroloid Ltd. Eng. pat. 210,493, Oct. 25, 1922. Paper for photographic purposes is impregnated with a sizing material such as animal size, casein or albumin, by passing it first through a bath of impregnating solution in such a manner as to cause partial impregnation only and then between pressure rolls, either in the sizing bath or after passing through it, to press the sizing material into the paper and effect complete impregnation. The paper is also treated with a hardening agent such as alum, chrome salts, or formalin, which may be added to the sizing bath or applied subsequently, as by rollers. To improve and accelerate the impregnation an alkali such as caustic soda or an acid such as lactic acid may be added to the sizing bath. The sizing bath is at a temperature of 35° to 45° C., and to prevent formation of pores or cracks the paper is cooled prior to drying by a slow current of cold air. The paper is stored in a wet condition in piles or on reels to further assist a uniform distribution of the sizing material and prevent glazing of the surface.—A. P.-C.

Method of Preserving and Hardening Paper. J. A. DeCew, assignor to Process Engineers, Inc. U. S. pat. 1,483,630, Feb. 12, 1924. About 1 lb. of formaldehyde solution (40%) per 1,000 lb. of stock is added in the beater, which results in preserving the pulp from fermentation during the process of manufacture, and at the same time coagulates the soluble mucilaginous matters present, either by accident or by design, in the pulp. It also gives a harder and snappier paper, which is easier to handle on the paper machine.—A. P.-C.

New Process of Pulp Manufacture. Erich Laaser. Ger. pat. 391,267. *Papierfabr.* 22, 110-111 (March 16, 1924). High pressures and temperatures are avoided in pulp manufacture by an intermittent cooking and steaming treatment. The apparatus is described.—J. L. P.

Separating Paraffin From Paper or Cardboard. C. F. Sisson and H. E. Eurich. U. S. pat. 1,482,488, Feb. 5, 1924. An apparatus for removing paraffin from boxboard, paper, etc., comprises a pulping device, a storage tank for the pulp formed in which the latter may be agitated and heated by steam, a reservoir for treated pulp and a connection for leading overflow from the reservoir back to the storage tank.—A. P.-C.

Deinking Waste Paper. John Stevens, 3rd, assignor to Arthur D. Little, Inc. U. S. pat. 1,482,825, Feb. 5, 1924. The paper is pulped in a beater with water at 140° to 180° F., from which it is removed continuously, passed through a tank where its temperature is brought to the desired point, and through a consistency regulator. It is mixed with soda ash solution passed through a series of troughs or rifflers, which are designed so that the time taken for the pulp to pass through them is sufficient to allow the soda ash to emulsify and separate the ink, sizing, etc., from the fibers, and finally put through a washing machine consisting of a series of cylinders and agitators arranged alternately.—A. P.-C.

Two By-Products of Wood Working Industries. Jac. Kaustinen, *Pappers-Och Trävarutid. För Finland*, No. 22 (Nov. 30, 1923). Valuable by-products, which are commonly overlooked, are wood ash and spruce bark. Thus the ash of different woods contains important materials for agriculture, phosphoric acid, potash and lime. The ash of beech consists of 12% of potash, 8% of phosphoric acid and 58% of lime; the ash of pine, 10% of potash, 8% phosphoric acid, 50% lime; while spruce ash consists of about 10% potash, 5% phosphoric acid and 50% lime. Available data as to the composition of the ash are at variance. The ash produced in the Finnish industry yields 2,835 tons of potash, 1,980 tons of phosphoric acid and 14,175 tons of lime a year. According to Professor Aschan spruce bark contains 11.9% of tanning substances. The annual consumption of spruce by Finnish mills is as follows: For cellulose mills about 3,000,000 cu. m.; for groundwood, 1,000,000; for sawn goods about 2,000,000 cu. m. Finland imported the following quantities of tannin and tannin extracts: in 1913 about 7,900 tons, in 1922 about 3,500 tons. It will thus be seen that the entire requirements of the country could be covered by obtaining tannin from spruce bark.—P. B.

Depression in German Paper Industry

WASHINGTON, D. C., November 3, 1924.—Manufacturers report that the depression in the German paper industry has become more acute in recent months and plants are estimated to be running at only 58 to 65 per cent capacity, says a report to the Paper Division from Vice Consul Scott at Dresden.

The exportation of news print and other papers containing mechanical ground wood is reported to have fallen off, due to competition from the United States, Canada, Finland and Sweden. English firms are said to be cutting into the trade in the Netherlands, Spain and the South American countries through favorable credit terms, while keen competition by Austrian and Czecho Slovak firms in the Balkans have brought prices there to a level which practically prohibits the sale of German paper. The report says that a fairly good business has been done in packing paper especially in the strong types in demand in England and other over seas countries.

THE MANUFACTURE OF PHOTOGRAPHIC PAPERS*

By A. Fast

The manufaeture of photographic papers is one of the most difficult lines in paper production. One of the chief reasons for this is the absence of standards of quality that either the producer or the consumer of photographic papers could go by. Frequently ten or more different grades of paper will be used to produce the same result. Besides, the tastes of the consumers vary as to the desired finish, gloss, shade and weight. The lack of agreement as to requirements brought about diverse method of manufacture.

At present, the rapid development of photography has caused over a hundred paper mills to manufacture photographic papers. However, it must be admitted that the very best photographic papers are still produced at the "Blanche and Cleber mill at Rive, France, and at the Steinbach mill in Germany, as has been true for thirty years. The perfection of their papers is the result not only of an enormous amount of experience and knowledge, but also, as I have had the occasion to convince myself, of an extremely conscientious attitude with respect to all the processes during manufacture. These mills have, of course, carefully guarded the details of manufacture from competitors, and the newer mills followed their example. This is the reason for the absence of reliable information in the literature on photographic papers.

Three Main Groups

Depending upon the photo-technical process to be employed, photographic papers are divided into three main groups:

(a). Papers upon which the light-sensitive coating is applied directly, such as, blue print papers, some silver chloride papers, transferring papers for pigment printing, etc.

(b). Papers having the emulsion sensitive to light applied upon a baryta base, such as the most important kinds of silver-chloride papers—chlor-brom-silver papers, papers for printing under gas illumination, some brom-silver, etc.

(c). Papers which serve temporarily to receive the light-sensitive coating or the print, as for example, pigment, transferring, brom-silver, etc.

Obviously, it is impossible to state in a few words what are the qualities sought in the aforementioned papers. However, it is clear, that the first requirement which applies to all photographic papers is that the picture on it must come out as real as possible. It follows from this that the paper must contain no salts capable of reacting with the chemicals of the various photographic baths, otherwise the picture will be damaged.

Structure Must Be Uniform

The structure of the paper and its surface must be as uniform as possible. After wetting and drying, the paper must change its dimensions as little as possible and as evenly as possible, for otherwise the paper will curl while in the baths and the picture is likely to be distorted. Having thus stated the chief requirements in photographic papers we can now proceed to examine the peculiarities of their manufacture.

The requirement of extreme chemical purity of the paper means that the water supply must be as pure as possible. The French mill of which we spoke above uses remarkably pure spring water. It is especially important to look out for iron in the water since it may enter into chemical reaction with either the chemicals used in paper manufacture, like rosin, causing a yellowing of the paper, or else with the photographic reagents, forming colored substances.

No ground wood is used in photographic papers to avoid yellowing of the paper. The cheapest grades use a furnish of 70 per cent Mitsherlich sulphite and 30 per cent Ritter-Kellmer Sulphite. Medium grades are made of rag and chemical wood pulp, while the best photographic papers contain 15 to 25 per cent cotton and 85 to 75 per cent linen.

The requirement of high purity as well as the necessity of careful manufacture mean that all the processes entering into the making of photographic paper must be carried out with painstaking attention to details.

Rags Very Carefully Sorted

The rags are sorted out very carefully for all metallic particles, such as copper or iron buttons, hooks, etc. These metallic particles must be removed for they tend to decompose the light-sensitive coating through electrolytic action. For this reason also it is necessary to guard against any metallic particles getting into the stock from the machinery used in its treatment. Generally it is not sufficient to conduct the operations in a careful manner and special machinery must be employed.

The rags, after being thoroughly sorted and evenly cut, are cooked for about 10 hours under 4 atmospheres pressure with 10 per cent lime which has been purified from dirt and sand in special sand traps.

The rags after cooking are washed in special washers and are beaten to halfstuff. The bars of the beater roll and the knives of the bedplate are either of bronze of such composition as to contribute the least amount of metal to the stock, or else they are made of specially hard steel of a patented French process.

The beaten halfstuff is run through large sand traps equipped with strong electro-magnets where the stuff is freed of metallic particles and also of knots and other heavy impurities. From here the stuff is run through screens and thus stock of uniform fiber length is obtained. The screens are usually of the revolving type. The next step in the process is dewartering the stock on machines supplied with presses. The stuff is now ready for the bleaching chambers, where gaseous chlorine is employed in order that any metallic particles still left in the halfstuff may be converted into easily soluble chemical compounds. Sometimes the bleaching process is completed with bleaching powder. The chlorine compounds of iron, bronze, etc., are now removed by thorough washing and traces of chlorine are destroyed by using ammonia as an antichlor. The bleached halfstuff is run into drainers or else it is run over special dewatering machines.

Beaters Lined with Tile

In order to prevent any metallic particles from getting into the stuff from the beaters or washers, these are most frequently lined with tile. The drainer walls are similarly lined. The beating is done in beaters with sharp beater bars of the same material as those in the washers. Steel bars are generally preferred, because iron particles coming from them are more certain to be caught by the electromagnets. The beating time is short, 3 to 4 hours, with the rolls set hard.

It is very important that the stuff be uniformly beaten and free from lumps, therefore further treatment in refiners is sometimes resorted to. From the refiners the stuff passes through sand traps equipped with magnets and perhaps also through some purifying arrangements, and then it is made to flow quietly to the paper machine. In order that the paper should have an even formation and look-through special attention must be given to the shake, slices, suction boxes and presses. The most uniform surface without wire and felt impressions is obtained by making the third press do more work, by using thin felts and by having a press of ebonite, stone or bronze between the third and fourth driers. The drying is conducted in the most careful way in order to avoid injury to sizing.

Sizing of Great Importance

Proper sizing is of greatest importance in photographic papers.

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*Translated from Bumazhnaia Promyshlennost (Russia), III, No. 5, 230-237, May, 1924, by M. L. Caust, B. S.

In the first place, it is necessary that the photographic impression be made on the surface of the paper only without penetrating into the paper, for otherwise the picture suffers in clearness and is pale and colorless. In the second place, it is essential that the light-sensitive coating be easily removed by washing with water. "Pigment" papers, however, are not strongly sized, for here the water must penetrate evenly and fairly rapidly through the paper. At the Steinbach and Rive paper mills they use rosin and starch, although gelatine, glue and casein are also used. Generally glue is being avoided, because it makes the washing out of traces of the light-sensitive coating rather difficult. It has also been observed that glue is responsible for the appearance of a reddish tinge on papers prepared with silver salts and of a dark-bluish tint where platinum salts were used, especially, if the glue has started to decompose.

To Avoid Yellowing

In order to avoid yellowing of the paper on account of the rosin in it, it is recommended that the rosin be treated with chloride of lime before it is made into size. Ultramarine cannot be used for tinting of those papers where acid is to be used later, since the latter turns ultramarine yellow. In this case cobalt blue may be used. All colors used for photographic papers must be fast to light, acids and alkalies. As a rule no loading materials are employed. Good photographic papers contain 2 to 4 per cent ash.

The strength of photographic papers depends upon the way they are to be used. The better papers made at Steinbach and Rive show an average breaking length of 2500m. and an elongation of 2.4 per cent. Since most of the developing agents used at present are alkaline, and tend to weaken the paper, it is advisable to wet the strip of paper in a 10 per cent alkaline solution before making the breaking length test. This test is important for papers intended to be used in such a way that the silver bromide paper is passed as an endless strip through reacting and washing baths where, of course, no break must occur.

Uniform Formation

It has already been pointed out that the stock for photographic papers is beaten rapidly. Paper from such stuff is not strong, but it can have a uniform formation and surface, and its dimensions are not changed as much after wetting and drying as is true for most papers. This is very important for photographic papers. The ordinary paper after wetting and drying will be found to have changed little in the machine direction, but the change across the machine direction may be as great as 3 or 4 per cent, and sometimes more. The greater the difference in shrinkage in the perpendicular directions of the paper, the greater also is the tension through the thickness of the sheet after drying, and the more likely is the paper to curl while being treated in the baths. At the same time the picture itself is likely to suffer, and for this reason, the paper is generally cut in such a way that the print should change the least in its width, because any change in length is not so noticeable.

Any papers intended for copying work, for example, tricolor printing, must not change too much after wetting and drying for otherwise the superimposed prints will not coincide.

Removing Metallic Compounds

Before completing this review of the manufacture of raw stock for photographic papers it should be pointed out that at times, before the halfstuff is satisfactory, the metallic compounds must be removed by oxidizing with hydrogen peroxide and sulphuric acid and then by thorough washing. Sometimes the finished paper has to be similarly treated. Pulp that is bought outside is likely to contain much iron. This may be detected by wetting the sheet in 40 per cent hydrochloric acid solution and then dipping it in a solution of potassium ferrocyanide. Shering's patented method for the removal of metal particles consists in treating the finished paper with a 5 per cent solution of sulphuric acid with some glycerine added to it. The acid dissolves the metals and parchmentizes the surface of the paper. Then the paper is passed through a solution of barium forming a precipitate of barium sulphate which fills up the pores of the paper and assists in the formation of an even surface. Paper treated this way represents a transition to group (b), where the raw stock is coated with baryta.

Coating with Baryta

The object of coating photographic papers with baryta is to make it possible to use papers which were not manufactured with the required care. The baryta coating insulates the paper from the sensitizing emulsion and prevents any chemical reactions between the latter and any chemicals in the paper. The penetration of the reagents into the paper is also prevented. The baryta coating is light, about 30 gram per square meter. The ordinary coating machines are employed and the coating is put on two or three times. The binding material is usually high grade chemically pure gelatine, which is diluted with some glycerine to give a softer feel to the paper. The formula for the binder for coating was for a long time kept secret and many mills have spent much time experimenting with starch, casein and other materials before they convinced themselves that gelatine is the only satisfactory binder.

In order that the coating should be as solid as possible without blisters, it is customary to add to the baryta suspension some formaldehyde or aluminum sulphate. For the preservation of the light-sensitive coating, baryta coated papers should have a slightly acid reaction. To achieve this citric acid is added to the coating mixture. The barium sulphate must be absolutely free from iron and is therefore treated with weak sulphuric acid followed by thorough washing. The best baryta is obtained by precipitation from barium carbonate and sulphuric acid. If the solutions are warm the precipitate is comparatively coarse and is best for matte papers; in cold, very fine barium sulphate is obtained suitable for high finish papers. It is obvious that the apparatus and containers used during the coating process must not be of iron; they should be enameled or of wood. For colors the baryta is mixed with some fast dye to give a rose or yellowish shade. Curling is prevented by applying a thin film of gelatine on the back side of the paper. Baryta coated paper is given a high finish on calenders of paper and cast iron rolls. A very high gloss must be avoided, for otherwise the light-sensitive emulsion does not take on readily to the baryta coating.

The composition and characteristics of the various sensitizing emulsions as well as the apparatus and machinery for their application to the raw stock are fully described in the famous handbook by Eder. Since these concern the photographic expert rather than the paper manufacturer further consideration of them is inadvisable.

To Educate Waxed Paper Consumers

The American Waxed Paper Association is just sending out the first of a series of educational bulletins which it intends to distribute to consumers of wax paper. The first bulletin is handsomely printed and cannot fail to attract favorable attention.

On the first page under the caption "A New Waxed Paper Association with a New Purpose" appears the following:

"Only when buyer and seller can meet upon the common ground of *'known value'* can price have a meaning. The purpose of this Association is to establish practices and specifications acceptable to all concerned and forming a true basis for price quotations. These purposes are definitely stated in the following section of the by-laws of the Association.

"The purpose of the American Waxed Paper Association shall be to protect and promote the waxed paper industry, and to that end, the Association shall undertake to—

"(a) Promote mutual confidence among and between the manufacturers and consumers of waxed paper and waxed paper products.

"(b) Develop standards of waxed paper, waxed paper products and raw materials used in their manufacture that will be recognized by the industry, the trade, and the public."

On the inside pages of the bulletin are printed the trade customs of the new association.

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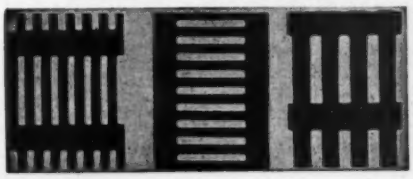

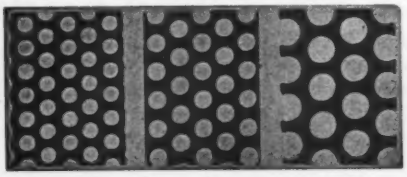

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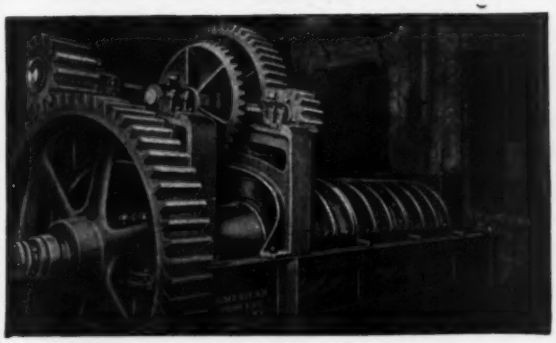

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GOVERNMENT PAPER BIDS AND AWARDS

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., November 5, 1924.—The Government Printing Office has received the following bids for 4,200 pounds of 22½ x 28½-140-jute tag board: Broderick Paper Company, 9.46 cents per pound; Dobler & Mudge, 9.5 cents; Reese & Reese, 9.31 cents; Mathers-Lamm Paper Company, 9.4 cents; R. P. Andrews Paper Company, 8.35 cents; American Writing Paper Company 10 cents and Barton, Duer & Koch Paper Company, 9.85 cents.

Bids were also received for four tons of No. 10, 26 x 38, binders board: Mathers-Lamm Paper Company, $70.00 per ton; C. L. LaBoiteaux $69.00; Dobler & Mudge, $82.50; Kerr Paper Mill Company, $72.00 and Barton, Duer & Koch, $74.00.

The Government Printing Office has received the following bids for 40,000 pounds of No. 2 quality 25 x 30 No. 20 binders board: Old Dominion Paper Company, $70.80 per ton; C. L. LaBoiteaux Company, $69.00; Dobler and Mudge, $72.50; Mathers-Lamm Paper Company, $67.70; Whitaker Paper Company, $67.29; Kerr Paper Mill Company, $67.00; Twin Falls Binders Board Mills, $73.00; C. B. Hewitt, & Bros., $65.00; Barton, Duer & Koch Paper Company, $68.65 and Holliston Mills, $70.00.

The Printing Office also received bids on 3,600 lbs. of 21 x 32—36 No. 20 pink sulphite writing paper: Reese and Reese, 7.96 cents per pound; Maurice O'Meara Company, 10 cents; Old Dominion Paper Company, 8.99 cents; R. A. Cawthorne Paper Company, 9.1 cents; Barton, Duer & Koch, 8.55 cents; Broderick Paper Company, 10.2 cents; American Writing Paper Company, 9.44 cents; Lindemeyr and Harker, 9.44 cents and 9.94; and the Baxter Paper Company, 8.75 cents.

The Government Printing Office has received bids on 40,000 pounds of yellow wood bristol board in 20 inch rolls. R. P. Andrews Paper Company, 4.74 cents per pound; Maurice O'Meara Company, 5.2 cents; Mathers-Lamm Paper Company, 5.29 cents; Carter Rice & Co., 4.94 cents; American Writing Paper Company, 6.5 cents; Whitaker Paper Company, 4.93 cents and Reese & Reese, 4.95 cents.

The Printing Office has also received the following bids for 46.150 pounds of kraft wrapping paper flat and in rolls: R. J. Terry Company, 5.7 cents; Whitaker Paper Company, 5.41 cents; R. P. Andrews Paper Company, 5.25; Maurice O'Meara Company, 6 cents; Mathers-Lamm Company, 5.3 cents and 5.9 cents; Samuel S. Alcorn, 5.4 cents; R. A. Cauthorne Paper Company, 5.44 cents; National Consumers Paper Company, 6.23 cents and Graham Paper Company, 6.6 cents.

The following bids were also received for 5,000 manila filing jackets 4¼ x 9: U. S. Envelope Company, 5.55 per M; Mathers-Lamm Paper Company, $6.00; Oles Envelope Company, $6.40; R. P. Andrews Paper Company, $7.15 and $7.45.

The Government Printing Office will receive bids on November 10 for 36,000 pounds of green wood bristol board in 20" rolls. Bids will also be received on the same date for 10,000 pounds (100 reams) of 19 x 24—100, buff desk blotting paper.

Paper Awards

The Government Printing Office has announced the following paper awards:

Dobler & Mudge will furnish 27,350 pounds (200 reams) of various sizes 50 per cent white map paper at 14.69 cents per pound. Barton, Duer & Koch will furnish 11,700 pounds (300 reams) of 24 x 38—39 No. 16, 75 per cent; white map paper, at 17.41 cents per pound. Bids for these items were opened on October 6.

The American Writing Paper Company will furnish 2,550 pounds (60 reams) of 21½ x 32½ mimeograph paper at 7.9 cents per pound and the Allied Paper Mills will furnish 19,500 pounds (500 reams) of 24 x 38—39 No. 16, yellow sulphite writing paper at 7.75 cents per pound. Bids for these items were received on October 10.

Reese & Reese will furnish 61,000 pounds (450 reams) of buff and melon 21 x 31—102 wood bristol board at 4.995 cents per pound and Barton, Duer & Koch will furnish 1,725 pounds, (150 reams) of 17 x 28—11½ No. 9 green glazed manifold bond paper at 26.75 cents per pound. Bids for these items were received on October 15.

Barton, Duer & Koch will also furnish 3,600 pounds of 22 x 34—181 No. 9—dark pink glazed manifold bond paper 26.37 cents per pound, bids for which were received on October 17.

The Aetna Paper Company will furnish 4,700 pounds, (200 reams) of 21 x 32—3½ No. 13 green glazed manifold bond paper at 15.27 cents per pound. The Allied Paper Mills will furnish 16,400 pounds (200 reams) of 24 x 38—77 double coated, two sides book paper at 8.74 cents per pound. The same firm will also furnish 49,000 pounds (400 reams) of the same, various sizes at 8.2 cents and 26,950 pounds (260 reams) of double coated two sides rag book paper at 11.5 cents per pound.

Bids for these items were received on October 22.

Roy Hannahs Goes Back with Dwight

Roy Hannahs, one of the best-known paper salesmen in the Chicago territory, rejoined the sales department of Dwight Bros. Paper Company, on November 1. The Dwight company is operated by W. E. Dwight, and is one of the largest paper distributing houses in Chicago.

Mr. Hannahs has been in the paper business for a good many years. He first started as errand boy for the J. W. Butler Paper Company, of Chicago. He advanced to a sale position and in all was with the Butler firm for about fifteen years. Then he joined the sales force of the Dwight Brothers Papers Company, remaining there about five years. Following this he returned to the J. W. Butler Paper Company, severing his connections with that organization to rejoin the Dwight force on November 1. In all of his changes, Mr. Hannahs left with the entire good-will of his previous employer.

Last Monday evening, members of the sales staff of the Butler firm tendered a dinner to Mr. Hannahs as a token of the esteem in which he is held by every one of the organization.

Mr. Hannahs' work with Dwight will be along sales promotion, the activity in which he feels most at home.

R. P. Andrews Recovering

The many friends in the paper trade of R. P. Andrews, president and general manager of the R. P. Andrews Paper Company, Washington, D. C., who has been seriously ill will be pleased to learn that he is rapidly recovering and in all probability will be able to return to his desk in the next week or ten days.

Mr. Andrews for several weeks prior to the National Paper Trade Association meeting in Chicago was suffering with a very bad cough and cold. Feeling it his duty to attend the meeting he went to Chicago, but after one day had to return home where he has been confined to his bed with what developed into bronchial pneumonia. He was very ill last week, but is now on the road to recovery.

Marcus B. Bilhartz Dead

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., November 3, 1924.—Marcus B. Bilhartz, for more than 17 years associated with the J. L. N. Smythe Company in its sales organization, covering the Philadelphia trade, died at the University Hospital on October 22 following a month's illness from a complication of diseases. Previous to joining the Smythe Company he was actively connected with the city government as Common Councilman and prominent in Republican politics in the Thirty-seventh Ward, retiring from politics. He served in Councils under the Weaver Administration.

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Whitewood and Red Wood Felt Rolls.
Brass Felt and Table Rolls.
Iron Cores for Rubber Rolls.
Bronze Doctor Blades.
Bronze Suction boxes and Covers.
Bronze Castings of all descriptions.

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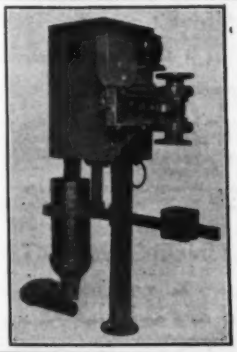

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Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING NOVEMBER 1, 1924

SUMMARY

News print.....59 bls.
Printing paper.....9 bls., 432 rolls
Cigarette papers.....50 cs.
Hanging paper.....28 bls., 3 cs
Wall paper.....11 cs., 13 bls.
Tissue paper.....35 cs.
Filter paper.....21 bls., 5 cs.
Wrapping paper.....2 bls.
Photo paper.....3 cs.
Blotting paper.....20 bls.
Colored paper.....15 cs.
Greaseproof paper.....68 bls.
Miscellaneous paper.....34 cs., 11 bls., 49 rolls

CIGARETTE PAPER

P. J. Schweitzer, Rochambeau, Havre, 25 cs.
Standard Products Corporation, by same, 25 cs.

PAPER HANGINGS

A. C. Dodman, Jr., Inc., Cedric, Liverpool, 20 bls.
W. H. S. Lloyd & Co., Minnetonka, London, 8 bls.
W. H. S. Lloyd & Co., by same, 3 cs.

WALL PAPER

F. J. Emmerich, Minnetonka, London, 11 cs.
F. J. Emmerich, Cedric, Liverpool, 13 bls.

TISSUE PAPER

Meadows, Wye & Co., Cedric, Liverpool, 12 cs.
Standard Products Corporation, Homeric, Southampton, 23 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Chicago, Bordeaux, 2 bls.
A. Giese & Son, by same, 19 bls.
H. Reeve Angel & Co., Inc., Minnetonka, London, 5 cs.

WRAPPING PAPER

R. Hoe & Co., Minnetonka, London, 2 bls.

PHOTO PAPER

T. F. Wilmot & Co., Minnetonka, London, 1 cs.
J. J. Gavin, Cedric, Liverpool, 2 cs.

BLOTTING PAPER

Lunhain & Moore, Minnetonka, London, 20 bls.

COLORED PAPER

C. W. Williams, Samland, Antwerp, 15 cs.

PRINTING PAPER

National Paper & Type Company, Stavangerfjord, Kristiania, 9 bls.
New York Trust Company, by same, 432 rolls.

NEWS PRINT

National City Bank, Stavangerfjord, Sarpsborg, 59 bls.

GREASEPROOF PAPER

British American Tobacco Company, Samland, Antwerp, 68 bls.

PAPER

P. C. Zuhlke, Samland, Antwerp, 1 cs.
Japan Paper Company, Homeric, Southampton, 9 cs.
Ault & Wiborg, Bellerophon, Hong Kong, 24 cs.
New York Trust Company, Clara, Trieste, 11 bls.
New York Trust Company, by same, 49 rolls.

RAGS, BAGGING, ETC.

Castle & Overton, Inc., Eastern Dawn, Antwerp, 44 bls. rags.
Castle & Overton, Inc., by same, 168 bls. new cuttings.
E. J. Keller Company, Inc., by same, 65 bls. rags.
E. J. Keller Company, Inc., by same, 37 bls. bagging.
M. O'Meara Company, by same, 27 bls. cotton waste.
S. Birkenstein Sons, by same, 436 bls. rags.
Brown Bros. & Co., by same, 54 bls. bagging.
Textile Waste Merchandising Company, by same, 135 bls. bagging.
Stone Brothers Company, Rochambeau, Havre, 23 bls. rags.
Belgian Bank, by same, 1,013 bls. bagging.
Kidder Peabody Acceptance Corporation, by same, 90 bls. bagging.
Royal Manufacturing Company, Cedric, Liverpool, 100 bls. cotton waste.
Amsinck Sonne & Co., Minnetonka, London, 88 bls. rags.
Mechanics & Metals National Bank, Clara, Palermo, 389 bls. rags.
L. H. Abenheimer, Clara, Trieste, 232 bls. rags.
Anglo South American Trust Company, Samland, Antwerp, 225 bls. flax waste.
Equitable Trust Company, by same, 73 bls. flax waste.
Garfield National Bank, Cabo Creux, Marseilles, 168 bls. rags.
International Acceptance Bank, American Trader, London, 124 bls. rags.

OLD ROPE

Brown Brothers & Co., Samland, Antwerp, 84 bls.
Brown Brothers & Co., Stavangerfjord, Kristiania, 58 coils.
Brown Brothers & Co., Boston City, Bristol, 175 coils.

WOOD PULP

Johaneson, Wales & Sparre, Inc., Hellig Olav, Copenhagen, 1,250 bls. sulphite pulp; 125 bls. sulphate pulp.
Irving Bank Columbia Trust Co., by same, 624 bls.
Buck Kiaer & Co., by same, 1,400 bls.
Guaranty Trust Company, by same, 600 bls.
Tidewater Papermills Company, Stella, Murray Bay, 5,731 bls.
J. Anderson & Company, Stavangerfjord, Kristiania, 1,950 bls.
Poland Paper Company, by same, 1,250 bls.
E. M. Sergeant & Co., by same, 145 bls.
National City Bank, by same, 1,600 bls.
Buck Kiaer & Co., by same, 1,330 bls.

WOOD FLOUR

The Hansa Company, Hellig Olav, Copenhagen, 4,866 bags.
B. L. Soberski, Stavangerfjord, Kristiania, 1,500 bags.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 1, 1924

J. Weber, Cabo Creux, Genoa, 10 cs. paper.
Franklin Paper Company, Eastern Dawn, Antwerp, 50 bls. paper.
E. J. Keller Co., Inc., by same, 280 bls. rags.
Castle & Overton, Inc., by same, 344 bls. rags.
M. Friedman, by same, 53 bls. rags.
S. Birkenstein & Son, by same, 127 bls. rags.
Katzenstein & Keene, Inc., by same, 198 bls. rags.
J. L. Vandiner, by same, 94 bls. flux waste.
J. A. Steer, Dromore, Belfast, 159 bls. rags.
Castle & Overton, by same, 108 bls. waste paper.
Leshner Paperstock Company, Boston City, Bristol, 194 bls. rags.
Brown Brothers & Co., Cabo Creux, Genoa, 44 bls. cotton waste.
E. J. Keller Company, Inc., by same, 68 bls. cotton waste.
Shapera & Sons, Cabo Creux, Marseilles, 178 bls. rags.
Castle & Overton, Cabo Creux, Leghorn, 563 bls. rags.
S. Birkenstein & Sons, by same, 15 bls. rags.
Stone Brothers Company, by same, 81 bls. rags.
E. J. Keller Company, Inc., by same, 53 bls. rags.
Brown Brothers & Co., Boston City, Bristol, 56 coils old rope.

BOSTON IMPORTS

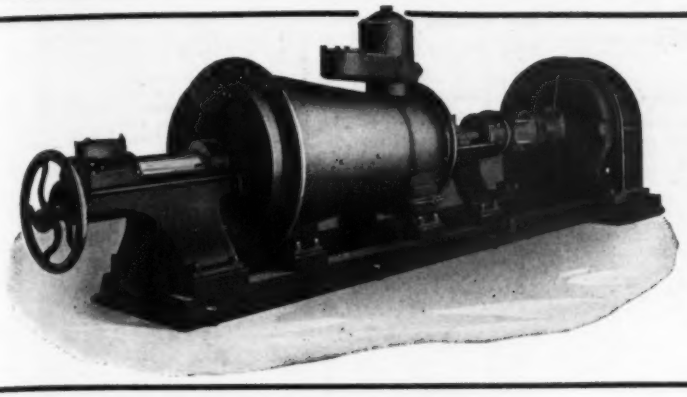
WEEK ENDING NOVEMBER 1, 1924

Castle & Overton, Deul, Hamburg, 1105 bls. wood pulp.
Second National Bank, by same, 293 bls. old rags.
National City Bank of N. Y., by same, 74 bls. cotton rags.
Castle & Overton, by same, 4,455 bls. wood pulp.
Howell Donaldson, Inc., by same, 1,166 bls. wood pulp.
Chemical National Bank, by same, 160 reels paper.
Chemical National Bank, by same, 129 bls. newspaper.
Drinkhausen & Hollkott Paper Company, Inc., by same, 284 reels printing paper.
Castle & Overton, by same, 1,340 bls. wood pulp.
Chemical National Bank of N. Y., by same, 269 reels wrapping paper.
National City Bank of N. Y., by same, 402 bls. of chemical wood pulp.
Second National Bank of Boston, by same, 94 bls. old rags.
Lee Higginson & Co., by same, 132 bls. old rags.
Bendix Paper Company, by same, 28 cs. of paper.
Ira L. Beebe & Co., Inc., by same, 525 bls. wood pulp.
Ira L. Beebe & Co., Inc., by same, 250 bls. wood pulp.
H. L. Dodge Company, by same, 14 crates pasteboard.
Lee Higginson & Son, by same, 22 bls. old rags.
Drinkhausen & Holikott Company, Inc., by same, 216 reels paper.
E. Butterworth & Co., by same, 40 bls. old rags.
The Rosmil Company, Lynn, Mass., Nevisian, Liverpool, 403 bls. pasteboard.
Hudson Trading Company, by same, 207 rolls print paper.
E. Butterworth & Co., by same, 207 bls. old rags.
Maurice O'Meara, by same, 10 cs. parchment paper.
Geo. M. Graves, by same, 408 bls. old rags.
F. B. Moors & Co., by same, 358 bls. old rags.
Guaranty Trust Co., by same, 41 bls. old rags.
Chase National Bank, by same, 587 bls. old rags.
Chase National Bank, by same, 174 bls. news print.
H. Bayer Paper Company, by same, 35 cs. printing paper.
Kidder Peabody & Co., by same, 39 bls. old rags.
Baring Brothers & Co., by same, 423 bls. old rags.
Brown Brothers Company, by same, 33 bls. old rags.
Philadelphia National Bank, by same, 39 bls. old rags.
G. F. Malcolm, Valemore, Liverpool, 16 cs. tissue paper.
G. F. Malcolm, by same, 61 bls. old rope.
T. D. Downing & Co., Daytonian, Manchester, 87 bls. new rag cuttings.
T. D. Downing & Co., by same, 102 bls. old rags.
Mechanics & Metals National Bank of N. Y., by same, 334 bls. waste paper.
Meadows, Nye & Co., Cedric, Liverpool, 4 cs. tissue paper.
Crocker Burbank & Co., Mississippi, London, 467 bls. waste paper.
Crocker Burbank & Co., by same, 229 coils old rope, 7 bls. old rags, 10 bls. paper stock.
Baring Brothers, Ltd., by same, 127 bls. waste paper, 8 pgs. new rags.
Crane & Co., by same, 44 bls. old rags.
William Scholl & Co., by same, 33 bls. old rags.

BALTIMORE IMPORTS

WEEK ENDING NOVEMBER 1, 1924

Johaneson, Wales & Sparre, Inc., Christian Bors, Frano, 7,650 bls. sulphate pulp.
Johaneson, Wales & Sparre, Inc., Christian Bors, Kramfors, 1,500 bls. sulphite pulp.



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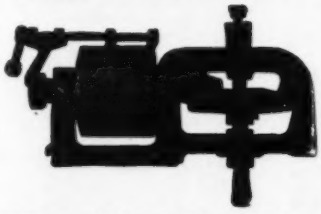

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Orr Endless Felts can now be obtained up to 86 feet in length.

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Paper Manufacturers who carefully check manufacturing costs, and also strive to produce more and better paper at a lower cost per ton, prefer the unvarying quality and long service of ORR felts. A trial of them will bring about a preference that will be lasting.

THE ORR FELT & BLANKET COMPANY, Piqua, Ohio

Market Quotations

PAPER SECURITIES CLOSING PRICES TUESDAY

Reported by Stewart Tuttle & Co., Inc., 120 Broadway, New York

Stocks	BID	ASKED
Abitibi Power and Paper Company, Ltd.	56⅛	56⅝
Abitibi Power and Paper Company, Ltd, Pfd.	98¾	99
American Writing Paper Company, Pfd.	2	2¼
Brompton Pulp and Paper Company, Ltd.	28⅛	28½
Donnacona Paper Company, Ltd.	45	50
Donnacona Paper Company, Ltd., Pfd.	98	100
International Paper Company	45	45⅛
International Paper Company, Pfd.	71	71¼
Laurentide Company, Ltd	80½	82
Price Brothers	36	37
St. Maurice Paper Co., Ltd.	81	83
Smith (Howard) Paper Mills, Ltd.	27⅛	27½
Spanish River Pulp and Paper Mills, Ltd.	101	102
Spanish River Pulp and Paper Mills, Ltd., Pfd.	111½	112
Union Bag and Paper Corp.	37⅛	37⅜
Wayagamack Pulp and Paper Company, Ltd.	35½	36
West Virginia Pulp and Paper Company	53	55

Bonds	BID	ASKED
Abitibi Power and Paper Company, Ltd., 1st 6s, 1934	100	101
Abitibi Power and Paper Company, Ltd., Gen. 6s 1940	96	98
Abitibi Power and Paper Company, Ltd., Con. 8s 1931	102½	103½
Belgo Canadian Paper Company, 1st 6s 1943	96¾	97¼
Brown Company Serial 6s	99½	100
Carthage Sulphite Pulp and Paper Company, 1st 8s 1941	35	50
Continental Paper and Bag Mills Corporation, 1st and Ref. 6½s, Series "A," 1944	94	95
Donnacona Paper Company, Ltd., 1st 6s 1940	98	100
Eddy Paper Company, 1st 7½s 1931	94	95
Gair (Robert) Company, 1st 7s 1937	98¾	98½
International Paper Company, 1st and Ref. 5s (Series "B") 1947	86½	87½
Mattagami Pulp and Paper Company, 1st 6s 1937	58	60
Mattagami Pulp and Paper Company, 1st 7s 1949	20	25
Oswego Falls Corporation, 1st 6s 1942	101½	102
Oxford Paper Company, 1st and Ref. 6s (Series "A") 1947	98	100
Parker, Young Company, 1st 6½s 1944	95½	97½
Paterson Parchment Paper Company, 1st 6s (Series "A") 1938	97½	99½
Peshtigo Paper Company, 1st 7s (Series "B") 1942	92	94
Price Bros. & Co., Ltd., 1st 6s (Series "A") 1943	98¼	99¼
Provincial Paper Mills, Ltd., 1st 6s 1940	98	100
Riordon Pulp and Paper Company, Ltd., Gen. 6s 1929	25½	30
Riordon Pulp and Paper Company, Ltd., 6s 1942	91	93
Riordon Company, Ltd., 1st and Ref. 8s 1940	96¾	97
River Raisin Paper Company, 1st 8s 1936	103	104
Smith (Howard) Paper Mills, Ltd., 6s 1934	95	95½
Smith (Howard) Paper Mills, Ltd., 1st Ref. 7s 1941	90	95
Spanish River Pulp and Paper Mills, Ltd., 1st 6s 1931	102½	103
Spanish River Pulp and Paper Mills, Ltd., Gen. 8s 1941	106	106½
Wayagamack Pulp and Paper Company, Ltd., 1st 6s 1951	74	77

Paper

F. o. b. Mill		
Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@30.00
Superfine	14.00	@30.00
Tub Sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.65	@ 3.90
Rolls, transit	3.75	@ 4.25
Sheets	4.15	@ 4.40
Side Runs	3.25	@ 4.00
Book, Cased—		
S. & S. C.	7.00	@ 9.75
M. F.	6.50	@ 8.75
Coated and Enamel	9.00	@15.00
Lithograph	9.00	@14.00
Tissues—		
White No. 1	.75	@ .90
White No. 2	.70	@ .80
Colored	1.05	@ 1.90
Anti-Tarnish	1.40	@ 2.30
Kraft	.90	@ 1.00
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	5.50	@ 6.25
No. 2 Domestic	5.00	@ 5.75
Imported	5.50	@ 5.75
Manila—		
No. 1 Jute	9.00	@
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.00
Fibre Papers—		
No. 1 Fibre	5.50	@ 5.75
No. 2 Fibre	4.75	@ 5.25
Common Begus	2.50	@ 2.75
S. Screening	3.25	@ 3.75
Card Middler	4.00	@ 5.00

Boards—per ton—		
News	50.00	@52.50
Straw	50.00	@55.00
Chip	42.50	@45.00
Binders' Boards	75.00	@80.00
Sgl. Mla. Lt. Chip	55.00	@62.50
Wood Pulp	70.00	@75.00
Container	62.50	@67.50
Sulphate Screenings—		
Coarse	.80	@ .90
Refined	1.75	@ 2.00
Ground Wood—		
Screenings	20.00	@25.00
Glassine—		
Bleached, basis 25 lbs.	12.00	@15.00
Bleached, basis 20 lbs.	14.00	@17.00

Mechanical Pulp

(Ex-Dock)		
No. 1 Imported	35.00	@40.00
(F. o. b. Mill)		
No. 1 Domestic	27.50	@34.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)			
Sulphite (Imported)—			
Bleached	3.75	@	4.50
Easy Bleaching	2.90	@	3.15
No. 1 strong unbleached	2.75	@	3.25
No. 2 strong unbleached	2.50	@	2.75
No. 1 Kraft	2.75	@	2.85
Sulphate—			
Bleached	3.50	@	3.65
(F. o. b. Pulp Mill)			
Sulphite (Domestic)—			
Bleached	3.50	@	4.50
Easy Bleaching Sulphite	2.75	@	3.25
News Sulphite	2.50	@	2.75
Mitscherlich	3.25	@	3.75
Kraft (Domestic)	2.75	@	3.00
Soda Bleached	3.90	@	4.10

Domestic Rags

New Rags

Prices to Mill, f. o. b. N. Y.			
Shirt Cuttings—			
New White, No. 1	14.00	@	15.00
New White, No. 2	7.00	@	7.75
Silesias, No. 1	8.75	@	9.25
New Unbleached	11.00	@	11.50
Washables	7.00	@	7.50
Fancy	7.75	@	8.50
Blue Overall	8.25	@	9.50
New Blue	5.00	@	5.50
New Black Soft	4.75	@	5.25
New Light Seconds	3.00	@	3.25
O. D. Khaki Cuttings	5.25	@	6.00
Men's Corduroy	5.00	@	5.75
New Canvas	7.00	@	7.50
New Black Mixed	2.75	@	3.00

Old Rags

White, No. 1—			
Repacked	6.25	@	6.50
Miscellaneous	5.50	@	5.75
White, No. 2—			
Repacked	4.25	@	4.50
Miscellaneous	3.75	@	4.00
St. Soiled, White	3.00	@	3.50
Thirds and Blues—			
Repacked	4.00	@	4.25
Miscellaneous	3.00	@	3.25
Black Stockings	3.50	@	3.75
Roofing Rags—			
Cloth Strippings	1.90	@	2.00
No. 1	2.40	@	2.50
No. 2	2.30	@	2.40
No. 3	1.20	@	1.30
No. 4	1.20	@	1.30
No. 5A	1.80	@	1.50

Foreign Rags

New Light Silesias	7.50	@	8.75
Light Flannelettes	8.00	@	8.25
Unbl'chd Cottons	9.50	@	10.00
New White Cuttings	11.50	@	12.50
New Light Oxfords	7.75	@	8.25
New Light Prints	7.25	@	7.75
New Mixed Cuttings	3.25	@	3.75
New Dark Cuttings	3.00	@	3.50
No. 1 White Linens	10.00	@	11.00
No. 2 White Linens	7.00	@	8.00
No. 3 White Linens	6.00	@	6.50
No. 4 White Linens	4.50	@	5.50
Old Extra Light Prints	4.50	@	5.00
Ord. Light Prints	3.00	@	3.50
Med. Light Prints	2.40	@	2.50
Dutch Blue Cottons	3.50	@	4.00
Ger. Blue Cottons	3.00	@	3.25
Ger. Blue Linens	3.50	@	4.00
Checks and Blues	2.25	@	2.50
Dark Cottons	1.50	@	1.75
Shoppery	1.40	@	1.60
French Blues	3.25	@	3.75

Bagging

Prices to Mill F. o. b. N. Y.			
Gunny No. 1—			
Foreign	1.80	@	2.00
Domestic	1.75	@	2.00
Wool, Tares, light	1.55	@	1.65
Wool, Tares, heavy	1.60	@	1.70
Bright Bagging	1.50	@	1.60
Sound Bagging	.90	@	1.00
Manila Rope—			
Foreign	6.25	@	6.50
Domestic	6.50	@	6.75
New Bu. Cut	2.25	@	2.50
Hessian Jute Threads—			
Foreign	2.25	@	2.50
Domestic	2.10	@	2.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, White, No. 1	3.50	@	3.75
Hard, White, No. 2	3.25	@	3.50
Soft, White, No. 1	2.90	@	3.10
Flat Stock—			
Stitchless	1.50	@	1.60
Over Issue Mag.	1.60	@	1.70
Solid Flat Book	1.45	@	1.55
Crumpled No. 1	1.25	@	1.35
Solid Book Ledger	1.80	@	1.90
Ledger Stock	1.60	@	1.70
New B. B. Chips	.50	@	.55
Manilas—			
New Env. Cut	2.45	@	2.55
New Cut. No. 1	1.75	@	2.00
Extra No. 1 old	1.40	@	1.50
Print	1.20	@	1.30
Container Board	1.00	@	1.10
Bogus Wrapper	1.00	@	1.10
Old Krafts Machine compressed bales	2.10	@	2.20
News—			
No. 1 White News	1.65	@	1.75
Strictly Overissue	1.05	@	1.15
Strictly Folded	.95	@	1.05
No. 1 Mixed Paper	.75	@	.85
Common Paper	.55	@	.65

Twines

Cotton—(F. o. b. Mill)—			
No. 1	.43	@	.48
No. 2	.41	@	.43
No. 3	.40	@	.42
India, No. 6 basis—			
Light	.19	@	.20
Dark	.17	@	.19
B. C., 18 basis	.39	@	.41
A. B. Italian, 18 Basis	.51	@	.61
Finished Jute—			
Dark, 18 basis	.30	@	.31
Light, 18 basis	.28	@	.30
Jute Wrapping, 3-6 Ply—			
No. 1	.20	@	.23
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.15	@	.17
Fine Tube Yarn—			
5-ply and larger	.20	@	.28
4-ply	.21	@	.24
3-ply	.22	@	.25
Unfinished India—			
Basis	.14	@	.15
Paper Makers' Twine			
Balls	.12	@	.13
Box Twine, 2-3 ply	.14	@	.15
Jute Rope	.20	@	.40
Amer. Hemp, 6	.30	@	.32
Sisal Hay Rope—			
No. 1 Basis	.14	@	.16
No. 2 Basis	.10	@	.12
Sisal Lath Yarn—			
No. 1	.14	@	.15
No. 2	.11	@	.13
Manila Rope	.18	@	.19

CHICAGO

[FROM OUR REGULAR CORRESPONDENT]

Paper

F. o. b. Mill			
All Rag Bond	35	@	40
No. 1 Rag Bond	25	@	35
No. 2 Rag Bond	14	@	25
Water Marked Sulphite	9	@	12
Sulphite Bond	6¼	@	10¼
Sulphite Ledger	9½	@	12
Superfine Writing	18	@	24
No. 1 Fine Writing	14	@	18
No. 2 Fine Writing	12	@	14
No. 3 Fine Writing	9	@	12
No. 1 M. F. Book	5¾	@	7¼
No. 1 S. & S. C. Book	6¼	@	7¼
Coated Book	8	@	10
Coated Label	8	@	10
News—Rolls, mill	3¼	@	4¼
News—Sheets, mill	4	@	4¼
No. 1 Manila	4½	@	5½
No. 1 Fibre	5	@	5¼
No. 2 Manila	3¼	@	4¼
Butchers' Manila	4	@	4¼
No. 1 Kraft	6	@	6½
No. 2 Kraft	5	@	5¼
Wood Tag Boards	4½	@	6
Sulphite Screenings	2½	@	2¾
Manila Tissue, 24x36 sheet	6¼	@	7
White Tissue, 20x30 sheet	6¼	@	7
Boards, per ton—			
Plain Chip	47.50	@	50.00
Solid news	50.00	@	52.50
Manila Line Chip	57.50	@	60.00
Container Lined—			
85 Test	67.50	@	70.00
100 Test	72.50	@	75.00

Old Papers

F. o. b. Chicago

Shavings—			
No. 1 Hard White	3.20	@	3.25
White Envel. Cuttings	3.20	@	3.25
No. 1 Soft Shav.	3.00	@	3.10
No. 1 Mixed	1.55	@	1.65
No. 2 Mixed	1.35	@	1.55

Ledgers and Writings	1.65	@	1.70
Solid Books	1.60	@	1.65
No. 1 Light Books	1.15	@	1.20
Blanks	210	@	2.15
Ex. No. 1 Manila	2.50	@	2.60
Manila Envelope Cuttings	2.60	@	2.70
Folded News (over issue)	1.00	@	1.05
Old Newspapers—			
No. 1	.90	@	.95
No. 2	.85	@	.90
Mixed Papers—			
No. 1	.80	@	.85
No. 2	.75	@	.80
Straw Clippings	.90	@	—
Binders' Clippings	.90	@	—
Kraft	2.20	@	2.25
New Kraft Cuts	2.60	@	2.65
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	$42.00	@	—
No. 2	40.00	@	—
No. 3	38.00	@	—
No. 4	38.00	@	—

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT]

Paper

Bonds	.09	@	53
Ledgers	.13½	@	.40
Writings—			
Superfine	.13½	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.08	@	.11
Book, S. S. & C.	.09¼	@	.12½
Book, Coated	.11½	@	.20
Coated Lithograph	.10	@	.13
Label	.10	@	.13
News	.04¾	@	.05
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.07	@	.10
Manila No. 2	.06	@	.08
No. 2 Kraft	.05	@	.08
No. 1 Kraft	.07	@	.08
Common Bogus	.03½	@	.04
Straw Board	55.00	@	60.00
News Board	42.50	@	—
Chip Board	40.00	@	42.50
Wood Pulp Board	2.75	@	3.00
(Carload Lots)			
Binder Boards—			
Per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	61.00	@	63.00
Slaters	66.00	@	68.00
Best Tarred, 1-ply (per roll)	1.70	@	1.80
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.10

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	1.75	@	1.85
Domestic	1.60	@	1.70
Manila Rope	5.00	@	5.50
Sisal Rope	2.50	@	—
Mixed Rope	1.25	@	—
Scrap Burlaps	1.15	@	1.20
Wool Tares, heavy	2.00	@	2.13
Mixed Strings	1.00	@	—
No. 1, New La. Burlap	3.50	@	3.75
New Burlap Cuttings	3.75	@	—

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard White	3.75	@	3.80
No. 2, Hard White	3.25	@	3.40
No. 1 Soft White	2.75	@	3.00
No. 2 Soft White	2.00	@	2.25
No. 1 Mixed	2.00	@	—
No. 2 Mixed	1.25	@	1.30
Solid Ledger Stock	1.75	@	1.90
Writing Paper	1.50	@	1.75
No. 1 Books, heavy	1.45	@	1.60
No. 2 Books, light	1.15	@	1.25
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.75
Container Manila	1.10	@	1.15
Old Kraft	2.00	@	2.25
Overissue News	1.05	@	1.10
Old Newspaper	.65	@	.70
No. 1 Mixed Paper	.75	@	.80
Common Paper	.60	@	.70
Straw Board, Chip	.65	@	.70
Binders Bd., Chip	.65	@	.70

Domestic Rags—New.

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.13	@	.14
New White, No. 2	.07	@	—
Silesias, No. 1	.08	@	.08¼
New Unbleached	.11¼	@	.11½
Washable	.05½	@	.05¾
Fancy	.07	@	.07¼
Cottons—according to grades—			
Blue Overall	.08¾	@	.09
New Blue	.03¾	@	—
New Black Soft	.06	@	.06¼
New Light Seconds	.03½	@	.03¾
Khaki Cuttings	.05½	@	.06
Corduroy	.04	@	.04½
New Canvas	.09	@	.09½
New Black Mixed	.05	@	.05¼

Old

White, No. 1—			
Repacked	6.75	@	7.00
Miscellaneous	6.25	@	6.50
White, No. 2—			
Repacked	.05	@	.05½
Miscellaneous	.04¾	@	.05¼
Thirds and Blues—			
Repacked	3.40	@	3.60
Miscellaneous	3.15	@	3.25
Black Stockings	4.00	@	4.25
Roofing Stock—			
No. 1	2.30	@	240
No. 2	2.20	@	2.30
No. 3	1.25	@	1.35
No. 4	2.10	@	2.20
No. 5A	1.40	@	—
B	1.25		nominal
C	1.15		nominal

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13½
Dark tinted	.13½	@	.15
Ledgers (sulphite)	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)	3.65	@	—
Sheets (carloads)	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rag	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	$28.00	@	30.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	50.00	@	55.00
Sulphite, bleached	80.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.60	@	—
Soft White Book shavings	3.00	@	—
White Blk. News	1.90	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.50	@	—
Light and Crumpled Book Stock	1.35	@	—
Ledgers and Writings	1.75	@	—
Solid Ledgers	1.75	@	—
Manilas—			
New Manila Cut	—	@	1.60
Printed Manilas	1.20	@	—
Kraft	2.05	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News	.90	@	—
No. 1 Mixed Papers	—	@	.75
Domestic Rags— Price to mills, f. o. b. Toronto		Per lb.	
No. 1 White shirt cuttings	.14½	@	.14¾
No. 2 White shirt cuttings	.07½	@	.08
Fancy shirt cuttings	.08	@	.08½
No. 1 Old Whites	—	@	—
Third and blues	.05½	@	.05¾
		Per cwt.	
Black stockings	.04	@	—
Roofing stock:			
No. 1	2.20	@	—
No. 2	2.10	@	—
Manila rope	.06	@	.06¼
No. 2	1.55	@	—

BOSTON

[FROM OUR REGULAR CORRESPONDENT]

Paper

Ledgers—			
Sulphite	.08½	@	.18
Rag Content	.18	@	.36½
All Rag	.38	@	.50
Bonds—			
Sulphite	.07½	@	.14
Rag Content	.16	@	.33½
All Rag	.36½	@	.51
Writings	.08½	@	.20
Superfines	.20	@	.48
News	.04	@	.06½
Book, M. F.	.06¼	@	.10¾
Book, Super	.07½	@	.11
Book, Coated	.09½	@	.20
Coated Litho	.10	@	.15
Label	.09½	@	.15
Jute Manila No. 1	.12	@	.13
Manila, Sul. No. 1	.05	@	.06
Manila, Sul. No. 2	.03¾	@	.04¾
No. 1 Kraft	6¼	@	.06½
No. 2 Kraft	.05¾	@	.05½
Common Bogus	.03½	@	.04
Straw Board	50.00	@	55.00
News Board	47.50	@	50.00
Chip Board	45.00	@	47.50
Wood Pulp Board	80.00	@	85.00
Binder Boards	75.00	@	85.00
Tarred Felts—			
Regular	61.00	@	63.00
Slater's	66.00	@	68.00
Best Tarred, 1 Ply, roll	1.50	@	1.60
Best Tarred, 2 Ply, roll	1.70	@	1.80
Best Tarred, 3 Ply, roll	2.00	@	2.10

Old Papers

Shavings—			
No. 1 Hard White	4.00	@	4.25
White Blank News	1.75	@	2.00
Manila Env. Cuttings	2.80	@	3.00
No. 2 Hard White	3.25	@	3.50
No. 1 Soft White	3.10	@	3.25
No. 2 Soft White	2.25	@	2.50
No. 1 Mixed	1.60	@	1.75
No. 2 Mixed	1.25	@	1.50
Solid Ledger Stock	2.00	@	2.25
Writing Paper	—	@	1.70
No. 1 Books, Heavy	1.60	@	1.80
No. 1 Books, Light	1.40	@	1.50
No. 1 New Manila	2.50	@	2.60
No. 1 Old Manila	1.75	@	2.00
Print Manila	1.05	@	1.20
Old Kraft	2.00	@	2.25
Overissue News	1.00	@	1.20
Old Newspapers	.90	@	1.00
No. 1 Mixed Paper	.70	@	.75
Box Board, Chip	.70	@	.75

Bagging

Price f. o. b. Boston

Gunny No. 1—			
Foreign	1.12½	@	2.00
Domestic	2.00	@	2.12½
Manila Rope	6.00	@	6.50
Mixed Rope	1.50	@	1.62½
Scrap Burlaps	1.25	@	1.50
Wool Tares, heavy	2.00	@	2.13
Mixed Strings	1.50	@	1.62½
New Burlap Cuttings	2.00	@	2.25

Domestic Rags (New)

Price f. o. b. Boston

Shirt Cuttings—			
New White No. 1	.13½	@	.14
Silesias, No. 1	.09	@	.09½
New Unbleached	.12½	@	.13
Washable	.06	@	.06½
Fancy	.07	@	.07¼
Cottons — according to grades, Blue Overall	.09½	@	.10
New Blue	.05½	@	.06
New Black, soft	.06	@	.06¼
Khaki Cuttings	.05½	@	.06
Corduroy	.04	@	.04¼
New Canvas	.10½	@	.11

Domestic Rags (Old)

Price f. o. b. Boston

White No. 1—			
Repacked	7.50	@	8.00
Miscellaneous	6.50	@	7.00
White No. 2—			
Repacked	5.50	@	6.00
Miscellaneous	4.75	@	5.50
Thirds and Blues—			
Repacked	3.75	@	4.00
Miscellaneous	3.00	@	3.25
Roofing Stock—			
No. 1	2.25	@	2.37
No. 2	2.12½	@	2.25
No. 3	1.50	@	1.75
No. 4	1.15	@	1.20

Champion Issues "The Paper Machine" Booklet

One of the finest pieces of printed matter describing the process of paper making, particularly the operation of the paper machine was recently prepared by the Champion Coated Paper Co., of Hamilton, Ohio. It is a remarkable portrayal of modern methods used in producing coated papers and should make a valuable addition to every paper man's library. The booklet is titled "The Paper Machine," being the sixth of a series of broadsides, pamphlets, folders, etc., which Champion is placing in the hands of all its distributor representatives.

The booklet is 9 by 12 inches in size and is printed on high grade Champion stock. Most striking of its contents are the half page halftone engravings illustrating every feature of the paper machine.

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, November 5, 1924.

For the past week members of the paper trade seem to have been thinking more about the political situation than about business. This may account for the fact that the week has been an unusually dull one and prices have remained just about the same all along the line. There is a feeling of anxiety about the future which has gone hand in hand with the general uncertainty of business throughout the country.

Now that the choosing of a new executive head of the nation seems to have been settled it is expected that business will be rejuvenated. To be sure there are some calamity howlers who say that the publication of the income tax returns is going to impair business for months to come.

It is charged that the man with money to invest is even less likely than before to put it into industrial rather than tax exempt securities. Then, too, it is felt that the making public of the returns will have a permanently unsettling effect upon labor. Since labor is permitted to know the minimum income of its employer it will feel at liberty to make demands and cut down profits.

The third and supposedly most dangerous result of the income tax situation will be, it is said, that the small manufacturer will be forced out of business at the will of his larger rival. The big company will scan the return of the small producer and if he sees that the latter has had an unsuccessful year will cut his prices thus squeezing him out.

All of these things are on the knees of the gods so far as the results are concerned, but the discussion of them has decidedly not been a good thing for the frame of mind of the average business man. The whole attitude for the past week or so has been one of waiting to see how things are going to develop.

As against this, however, there is a sure and steady demand rolling up for the winter and late fall. Paper men say that unless something very radical comes along to disturb the market there is every reason to believe that they will be doing an unusually good business within sixty days. Even with its ups and downs the last two months have not been unprofitable.

The mills seem to be gradually increasing their production and this is usually an unfailing symptom from which way things are about to jump. Advertising is on the increase rather than the decrease and this is always good news to every paper man all the way from news print manufacturer to the fine paper jobber.

Mechanical Pulp

There were signs of some slight improvement in the demand for ground wood during the past week and stocks on hand in the warehouses were drawn upon to some extent. Concessions on large orders, however, are still being made particularly by a few of the smaller mills who do not wish to have their production curtailed to even a slight degree.

Chemical Pulp

The higher grades of chemical pulp were in demand sporadically during the week and a few large orders passed through the open market although these were not in such numerous quantities as the dealers might feel desirable. Kraft continues to be a little ahead of the rest of the market. Prices seem to be fairly firm all the way around in spite of the fact that most of the buying is for present needs alone.

Rags

Mills seem to be somewhat stingy in giving out rag orders at the present time and only those who need them at once place orders for large quantities. Where many bales are usually on hand at the mill yards there are almost none today. New cuttings are about the only ones that seem to be much on call.

Old Rope and Bagging

While old rope did not continue its uyward trend of last week it seemd to be pretty firm and prices remained just about the same with more of a tendency to move upward than to go in the other direction. Roofing bagging continued to be the best proposition for the seller in the bag market with the other grades just about the same.

Waste Paper

There is a tendency toward lower prices in the waste paper market although there has been no general price cutting as yet. It is common knowledge that dealers will make good concessions for large orders since very few of the mills seem to be buying except in small lots for immediate use.

Twine

Twine still continued to move along about as it didd last week with indications, however, that it was due for a boost. Prices remained the same, but dealers are showing a tendency to stick to the quotations and not to concede anything except in cases of unusually attractive offers.

TORONTO TRADE IMPROVES

(*Continued from page 32*)

capacity. The development of nearly 60,000 horse power at Smoky Falls is involved also in the plan. It is said that the latter job will be begun immediately.

Notes and Jottings of the Trade

Harry L. Reid, superintendent of the paper bag plant of Kilgour Brothers, Toronto, who has been in poor health for some time, has sufficiently recovered to resume his duties with the firm.

C. Nelson Gain, general superintendent of the plants of the Garden City Paper Company, St. Catharines, who has been laid up with an attack of the flu, is able to be around once more.

George Winslow, sales manager of Lincoln Mills, Limited, Toronto, has returned from a business trip to the Pacific Coast and reports that trade is improving as a result of the heavy harvest on the prairies.

Bert Bradshaw, of Bradshaws, Limited, Toronto, manufacturers of waxed papers, is progressing favorably toward recovery after an operation for appendicitis.

"The World of Paper" Motion Picture Film

"The World of Paper," a film depicting the manufacture of paper from the earliest civilized era, has been completed by the General Electric Company, and is ready for distribution.

The story goes back to the ancient civilization of Egypt, to the days of hieroglyphic chippings. Then, in rapid succession, are shown the Assyrian, Phoenician, Chinese, Greek and Roman contributions to the slowly developed art. This period includes the cuneiform script on tablets of clay, the tedious manufacture of papyrus, and the earliest forms of paper-making, originated by the Chinese.

In the medieval age, Gutenberg invented the process of printing from movable type. The film at this point presents a view of a page from a priceless relic—the famous Gutenberg Bible of 1450-55, the first book ever printed.

The introduction of printing into America by Rittenhouse about 1690, the Colonial method of making paper by hand, and the appearance on April 24, 1704, of the *Boston News Letter*, "published by authority," America's first newspaper, are part of the pictorial history.

The film then is devoted to modern paper making, taking the spectator through the largest paper mill in the world.

The mechanical and chemical processes of making wood pulp are both shown, and there is a glimpse of the finished product in use in the press room of a metropolitan newspaper, as well as pictures of other forms of paper and products into which paper enters.

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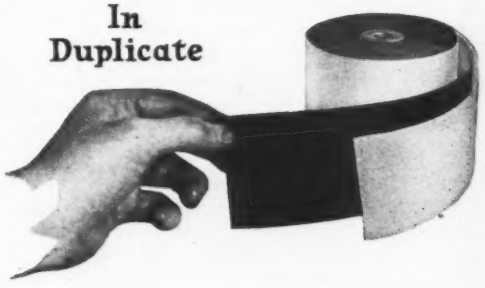

The necessity of duplicate adding machine listings has created an increasing demand for these rolls.

Ask for Samples and Quotations

PAPER MANUFACTURERS CO., INC.
S. W. Cor. 5th and Willow Streets, PHILADELPHIA, PA.

Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, November 5, 1924.

The announcement of the fall prices for most of the leaders in the chemical market generally comes after election day and both buyers and sellers are anxiously awaiting that time. There is a general feeling that some of these prices are too high, but on the other hand the buying has been steady enough to justify their remaining the same on the fall list or going even a little bit above their present level. The chemical maker is fortunate in that he never depends upon one industry alone for the disposition of his wares, but he can sell to the entire business world. The paper manufacturers have been taking small lots for immediate use but their demands have been steady and have kept the market just about the same with no changes at the present time.

BLANC FIXE.—The demand remains just about the same for blanc fixe with the price very firm at from $75 to $80 a ton for the powder and $50 to $55 for the pulp.

BLEACHING POWDER.—Bleach remains just about the same with a reasonably good demand keeping the price firm at its present level. The new price will be announced within a few days it is expected, but few expect it to be much different from 1.90 to 2.15 cents a pound where it has been for some time.

CAUSTIC SODA.—There were several large movements of caustic during the week but on the whole dealers say that it might be a little better. The demand is steady though below average and there is little buying on a future basis. The present quotation is from 3.10 to 3.15 cents a pound on a flat basis at the works.

CASEIN.—The small reduction in the price of casein a couple of weeks ago does not seem to have brought many additional buyers into the market but the demand is steady although small. Dealers are competing for orders at from 10¼ to 10¾ cents a pound..

CHLORINE.—The fact that the new price on chlorine is not yet out has held back any buying for the future but spot business continued fairly good. Manufacturers report that they have enough to do to keep them busy. It is still quoted at from 4.50 to 7 cents a pound in tanks.

ROSIN.—Naval stores are in good demand at the present with rosin no exception to the general rule. There are some concessions being made from time to time but the general price is keeping in the neighborhood of $6.

SALT CAKE.—Producers still continue to be below capacity in making salt cake since the demand is small, but this is not a serious proposition because salt cake is a by-product and is easily stored over long periods of time with no particular loss. The price remains at $17 to $20 a ton.

SODA ASH.—Continued steady demand marked the soda ash market for the past week, but it is generally felt that the buying would be considerably accelerated by the announcement of the new price schedule. Consumers are not contracting for any amounts except those that they actually need in their production from day to day. The price is still at 1.38 cents a pound on a flat basis at the works.

SULPHATE OF ALUMINA.—There is a constantly growing demand for alumina sulphate and although there is nothing startling in it the fact that it is noticeable at all is cheering to the dealers. The price is 1.30 to 1.35 cents a pound for the commercial grade and from 2.10 to 2.25 cents a pound for the iron free.

SULPHUR.—There was no change in sulphur during the week with the price still at $18 to $19 a ton.

TALC.—Talc is still at from $16 to $17 a ton with a steady demand that has been unchanged for several weeks.

Visit St. Regis Paper Co. Timber Limits

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., November 3, 1924.—"We never will experience a shortage of pulpwood so long as we want to manufacture paper" is the statement of one of the officials of the St. Regis Paper Company upon his return from a visit to the lumbering district in Quebec that has recently been opened up by the St. Regis Paper Company of Canada.

"A new loading station has been constructed at Godbout river, draining the St. Regis land, and empties into the St. Lawrence river. When this is in full operation they will be able to unload 1,000 cords of pulp wood every 24 hours.

"The wood, which is sawed into four foot lengths in the woods, is taken down to a bay in a regular log drive from the timber tract owned by the company and covering thousands of acres. It is taken out of the water with jack works and carried down a V shaped trough to the loading wharf. It is carried through this trough by gravity, water being pumped in at the upper end and the logs floating down. It is not operating fully now but will soon be working to capacity."

The party consisted of C. B. Martin, assistant treasurer, C. T. Jewell, general manager, and J. G. Norton of the Watertown Underwriters. Motoring from here to Montreal they took the Canadian National railways to Mount Jolli and then took a branch line to Matane where they crossed the river on the company's schooner "St. Regis." Landing in Godbout Bay they made their headquarters in the settlement of Godbout which is quite a thriving hamlet practically all owned by the St. Regis Company.

There has been some talk of the St. Regis Company of Canada building a large mill at Cap Rouge, Quebec, and information has been given out that this was to be started this fall. On his most recent trip to this city Floyd L. Carlisle, president of the company, refused to either confirm or deny the report.

Poland's Paper Industry Growing

WASHINGTON, D. C., November 5, 1924.—According to a report prepared by L. J. Kenna, American Consul Warsaw, Poland, there were 19 paper mills in Poland during 1923, 14 of which are members of an organization called the Association of Paper Mills of Poland. The mills altogether have about 39 paper machines and employ over 6,000 workmen.

The output has been gradually increasing since Poland became independent and is reported to have amounted to 48,395 tons in 1923. Production before the war is calculated to have amounted to 62,000 tons.

Although numerous kinds of paper are manufactured, total production is too small to meet consumption demands and over 39,440 tons of paper and paper products worth about 18,000,000 zlote (zlote = $0.1923) were imported in 1923, of which Germany and Austria supplied the greater part, their nearness to Poland and the depreciation of the German mark and Austrian crown during most of 1923 giving them an advantage.

The output of cellulose is estimated by the paper association as 40,000 tons in 1923. No government figures are yet available. Cellulose was manufactured by three factories, and an export duty was levied on this product as a favor to the paper industry.

MacSimBar Paper Co. Installs Size Tanks

The MacSimBar Company, Otsego, Mich., is installing in its beater room a new system of size tanks, built by the Kalamazoo Sheet Metal Company. The tanks are made of 14-gage galvanized iron, ten small ones being 30 inches in diameter and 30 inches tall, two large ones, each 8 feet, 6 inches in diameter and 6 feet tall, capable of holding 2,500 gallons of size. Regulation iron fittings are used throughout. The same type of equipment has just been installed by the Kalamazoo Sheet Metal Company in the Bardeen division of the Allied Paper Mills.